Pharmacy Library

AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

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1958-1959 AEROSOL BUYERS GUIDE

Aerosols at Lederle
Insect Repellents
Setco Aerosol Congress
Dry Ice Propellant
FDA Hints New Controls

October, 1958

THE ROAD TO INCREASED SALES LEADS TO STALFORT FOR . . . . .

CUSTOM PACKAGING

Stalfort can manufacture your formula, liquid or powder aerosol concentrate and fill with an inert compressed gas or conventional propellant.

Pastes, liquids, or powder manufactured and packed in conventional containers.

JOHN C. STALFORT & SONS, INC.

Manufacturing Chemists since 1868

PLANTS—
Arbutus, Baltimore, Md.

OFFICE—
321 W. Pratt Street
Baltimore 1, Maryland

THIS MONTH'S COVER

Lederle Laboratories' most successul aerosol product has been its topical spray called "Rhulispray." Information about Lederle's approach to aerosol packaging, its relationship with its custom filler, and the story of the development of "Rhulispray" begin on page 56.

OCTOBER, 1958 VOL. 3, No. 10

AEROSOL AGE

The magazine of pressure packaging

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SALES ENGINEER, Glenn A. Piper, Jr., has served the aerosol industry in the Chicago area since 1953. A midwesterner by adoption, he was born in Staten Island, New York. After serving a hitch in the Navy in World War II, Glenn attended Ursinus College, where he received a Bachelor of Science degree in chemistry. In 1951 Glenn joined Du Pont's "Freon" Products Division as a sales trainee, after which he was assigned as a sales engineer for "Freon" in Du Pont's Central District. Since then Glenn has worked closely with aerosol marketers and custom fillers in his area. As a Du Pont salesman, he is able to call on know-how from the whole Du Pont Company, which, added to his own specialized knowledge, makes him especially able to help aerosol marketers and custom fillers with their problems.

"These clinics help create new business for my customers by promoting the aerosol idea among marketers and prospects"

says Glenn A. Piper, Jr., of Du Pont

"We've found seminars are particularly effective in promoting the aerosol idea," says Mr. Piper, salesman for Du Pont's "Freon" Products Division. "The result is a steady flow of new aerosol products and new business for custom fillers in my territory.

"A typical seminar is an all-day session with a marketer's organization. Top management, chemists, advertising and marketing men and others interested in aerosols are invited. Du Pont experts demonstrate aerosol advantages and present marketing data. The group discusses particular technical and marketing problems related to the prospect's line. These seminars contribute valuable information for developing new aerosols and improving old ones. We've held about thirty-five in my district, and they've proved highly successful in promoting interest in aerosols."

Whether you're a loader or a marketer of aerosol products, you can take advantage of the valuable sales-building services which Du Pont offers. In marketing, Du Pont surveys develop information to help you expand sales of your products. In national advertising and promotion, Du Pont works continuously to build markets for aerosols, helping to bring you a steady flow of new customers.

In addition, Du Pont's know-how and experience are available for technical help with aerosol development or production problems. And, in the manufacture of "Freon", Du Pont offers aerosol propellents unsurpassed in quality, performance and properties. Du Pont maintains the industry's fastest propellent delivery schedules from three plants and a country-wide network of warehouses.

If you have a problem in any area of aerosol development, production or marketing, call or write the Du Pont office nearest you. And be sure to buy Freon* for all your propellent needs.

E. I. du Pont de Nemours & Co. (Inc.)
"Freon" Products Division 3210
Wilmington 98, Delaware

BRANCH OFFICES

40 Worth Street
New York 13, N. Y.

7 S. Dearborn Street
Chicago 3, Illinois

701 Welch Road
Palo Alto, Calif.

FREON® *propellents*

DU PONT
REG. U. S. PAT. OFF.

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. . . THROUGH CHEMISTRY

**Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon propellents.*

Watch those Aerosol Costs

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At Basic Costs That Will Return Bigger Profits

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It will deliver more for your money than any single pesticide compound presently available to formulators: faster knockdown . . . higher kill . . . greater safety.

The Pyrenone concentrates are *exclusive* combinations of technical *piperonyl butoxide* and *pyrethrins.* Two active ingredients that are highly effective even against "resistant" insects. Yet when used as directed they are both non-toxic to human beings.

For consistent quality and outstanding performance at a cost your markets can afford, better stick with Pyrenone—and play safe!

Complete technical data (plus sample label statements) are yours for the asking. Simply contact the nearest office of Fairfield Chemicals. You'll find convenient branches in principal cities. Or in Canada, write Natural Products Corporation, Montreal and Toronto.

Pyrenone

*Reg. U. S. Pat. Off., FMC

fmc FOOD MACHINERY AND CHEMICAL CORPORATION ®

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Fairfield Chemicals

Sales Headquarters

441 LEXINGTON AVENUE, NEW YORK 17, N. Y.

INDUSTRY CALENDAR

Sept. 29-Oct. 3—National Hardware Show, Coliseum, New York City.

Sept. 30-Oct. 2—Joint Military-Industry Packaging & Handling Symposium, Washington, D. C.

Oct. 8-9—Society of Cosmetic Chemists, seminar, Barbizon Plaza Hotel New York.

Oct. 13-15—Packaging Institute, 20th annual forum, Edgewater Beach Hotel, Chicago, Ill.

Oct. 14-16—Society of Industrial Packaging and Materials Handling Engineers, 13th Annual Exposition, Coliseum, Chicago.

Oct. 19-21—National Sanitary Supply Show, industry management seminar and trade show, Fairmount Hotel, San Francisco.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-24—National Safety Congress and Exposition, Industrial Safety Meeting, Conrad Hilton Hotel, Chicago, Ill.

Oct. 28-29—Northwest Garden Supply Trade Show, Portland, Oregon.

Oct. 29-31 — National Agricultural Chemicals Association, General Oglethorpe, Savannah, Georgia.

Nov. 13-14—Canadian Chemical Specialties Manufacturers, 1st annual meeting, Queen Elizabeth Hotel, Montreal, Canada.

Nov. 18-20—National Conference on Air Pollution, Sheraton Park Hotel, Washington, D. C.

Nov. 20—Society of Cosmetic Chemists, annual meeting, Statler Hotel, New York.

Dec. 8—Toilet Goods Assn., Scientific Section, Waldorf-Astoria Hotel, New York.

Dec. 9-11—Chemical Specialties Manufacturers Association, 45th annual meeting, Commodore Hotel, New York, N. Y.

• **Aerosol Buyer's Guide—1958-1959** . . . The second annual buyer's guide and directory to be devoted exclusively to the pressurized packaging field is the feature of this issue. Alphabetical listings of firms offering components, raw materials, equipment, and services begin on page 35.

• **The Aerosol Approach at Lederle Laboratories** . . . A major phamaceutical manufacturer and marketer adopts a cautious approach to aerosol packaging. How each product is conceived, developed technically, and then extensively tested are discussed in the October cover story on page 56.

• **FDA, Congress, Hint New Cosmetic Controls For 1959** . . . A summary of recent developments strongly indicating a "get-tough" attitude toward extravagant advertising and label claims by the cosmetic industry appears on page 59.

• **Insect Repellents — Will 1959 be the Big Year?** . . . Despite an ideal product for the aerosol package, insect repellents have not achieved the sales volume that was anticipated for them. The "why's" and "wherefore's" of this lapse in a concentrated sales promotion effort are discussed in a special article appearing on page 60.

• **SAFCA Aerosol Group Holds Annual Congress** . . . The annual meeting of one of the most unique corporate alliances in the aerosol industry is covered in an exclusive article beginning on page 65.

• **Dry Ice As An Aerosol Propellant** . . . A startling new idea in aerosol packaging is conceived and refined technically by an outstanding German chemist. A description of the method and of its advantages begins on page 73.

AEROSOL 1958 1959 BUYER'S GUIDE

How to use the Aerosol Buyer's Guide:

Where practicable, all components and services have been listed in alphabetical order, except in the case of various equipment categories, which appear under "Equipment." In this category are included can unscramblers, capping equipment, carton packers, container cleaners, coders, conveyors, compressors, ingredient and production line fillers, ingredient filters, laboratory equipment, leak detectors, propellant storage and handling systems, pumps, refrigeration equipment, and a general miscellaneous listing.

The page numbers appearing after the company listings indicate advertisements on other pages of the magazine. In these advertisements the reader will be able to find further information about the product line or service offered by the listed firm.

CONSULTANTS AND RESEARCH AGENCIES

Aeroprojects, Inc.
310 East Rosedale Street
West Chester, Pa.
OWen 6-4710
(Particle Size Analysis)

Alpha Engineering & Machine Works
800 West Central Avenue
Mt. Prospect, Ill.
CLearbrook 3-2800
(Machinery Design and Development)

Battelle Memorial Institute
505 King Avenue
Columbus, Ohio
(Research)

Evans Research and Development Corp.
250 East 43rd Street
New York 17, N. Y.
MUrray Hill 3-0071
(Product Development and Evaluation)
Page 124

Food & Drug Research Laboratories Inc.
Maurice Avenue at 58th Street
Maspeth 58, N. Y.
TWining 4-0800
(Toxicological and Inhalation Studies)

Robert A. Foresman, Jr., Aerosol Consultant
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0596
(Development—Formulation—Testing—Plant Layout—Customer Service)
Page 114

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600
(Packaging Components)
Page 109

Al Gaines
5100 Mulford Street
Skokie, Ill.
(Production, plant layout)

Gubelin International Corp.
Mount Kisco, N. Y.
MOunt Kisco 6-6998
(Overseas Representation)

Hazleton Laboratories
Falls Church, Va.
(Inhalation Studies, Toxicity Tests, Etc.)

Hill Top Research Institute, Inc.
Miamiville, Ohio
Terrace 1-3114
(Toxicity, Irritation, and Sensitization Tests)

W. Alec Jordan Associates
52 Park Avenue
New York 17, N. Y.
ORegon 9-1657
(Marketing and Market Studies)
Page 124

Leberco Laboratories
123 Hawthorne Street
Roselle Park, N. J.
Chestnut 5-1933
Product Toxicity and Irritation Studies)

Arthur D. Little, Inc.
30 Memorial Drive
Cambridge 42, Mass.
(Research)

Lodes Aerosol Consultants
730 Fifth Avenue
New York 19, N. Y.
CIrcle 7-3170
(Product Development—Research—Plant Layout)

Metico, Inc.
347 Fifth Avenue
New York 16, N. Y.
MUrray Hill 3-2850
(Plant Layout and Equipment)

Page 124

Pegasus International Corp.
1 East 53rd Street
New York 22, N. Y.
PLaza 8-2790
(Overseas Representation)

Product Development Associates
111-11 Lefferts Boulevard
S. Ozone Park 20, N. Y.
Virginia 8-2673
(Valve and Aerosol Dispenser Design)

Reed Research Corp.
Mill Street
Shelton, Conn.
REgent 5-4858
(Research—Testing—Product Development)

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Dr. Emery D. Robert
Research Consultant
3121 N. Sheridan Road
Chicago 14, Ill.
(Market Surveys, Technical Research and Development)

Rosner-Hixson Laboratories
7737 South Chicago Avenue
Chicago 19, Ill.
REgent 4-0142
(Toxicity Testing-Irritation Studies)

Foster D. Snell, Inc.
29 West 15th Street
New York 11, N. Y.
WAtkins 4-8800
(Research-Testing-Formulation)

United States Testing Co.
1415 Park Avenue
Hoboken, N. J.
SWarthmore 2-2400
(Research, Testing, Toxicology)

Wisconsin Alumni Research Foundation
P. O. Box 2217-DD
Madison 1, Wisconsin
(Formulation—Labeling—Toxicity Testing)

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CONTAINERS
(Aluminum)

Aluminum International Inc.
1855 Blake Street
Denver 15, Colo.
(Agents for Bombrini-Parodi Delfino)

Page 26

Aluminum Co. of America
Alcoa Building
Pittsburgh 19, Pa.

Continental Can Co.
100 E. 42nd Street
New York 14, N. Y.
OXford 7-1200

Page 87

Emson Research, Inc.
118 Burr Court
Bridgeport 5, Conn.
EDison 6-2553

Pages 120, 127

Hampton Products Co.
Hester Street
Portland, Pa.
TWin Oaks 7-6103

Hunter Douglas Division
Bridgeport Brass Co.
3016 Kansas Avenue
Riverside, Calif.

Peerless Tube Corp.
58 Locust Avenue
Bloomfield, N. J.
PIlgrim 3-5100

4th Cover

Pegasus International Corp.
1 East 53rd Street
New York 22, N. Y.
PLaza 8-2790
(Agents for Pautry Aluminum, Bellegarde (Ain) France)

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

United States Can Co.
Subsidiary, Victor Metal Products Co.
Newport, Ark.

White Metal Mfg. Co.
1012 Grand Street
Hoboken, N. J.
OLdfield 9-2043

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CONTAINERS
(Glass)

Brockway Glass Co., Inc.
Brockway, Pa.
BRockway 3015

Foster-Forbes Glass Co.
Marion, Ind.

Hazel Atlas Glass
Div. of Continental Can Co.
Wheeling, W. Va.

Maryland Glass Co.
2147-53 Wicomico Street
Baltimore 20, Md.

Owens-Illinois Glass Co.
Adams & 14th Streets
Toledo, O.
CHerry 2-6543

Richford Corporation
3618 Oceanside Road
Oceanside, N. Y.
ROckville Centre 6-2366

Wheaton Glass Co.
Millville, N. J.
TAylor 5-1400

CONTAINERS
(Jumbo-Size Metal)

Tube Manifold Corp.
419 Bryant Street
North Tonawanda, N. Y.
LUdlow 7900

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CONTAINERS
(Plastic and Nylon)

American Plastics Co. Inc.
25th and Kings Highway
Independence, Mo.

Page 125

Bernardin Bottle Cap Co.
Evansville, Ind.

Chemore Corp.
21 West Street
New York 6, N. Y.
HAnover 2-5275
(Agent for Montecatini)

Colt's Plastic Co.
Putnam, Conn.
WAlnut 3-9514

Imco Container Corp.
75th & Cleveland Streets
Kansas City, Mo.

National Plastic Products Co.
Odenton, Md.
SOuthfield 6-1000

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Owens-Illinois Glass Co.
Adams & 14th Streets
Toledo, O.
CHerry 2-6543

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Richford Corp.
3618 Oceanside Road
Oceanside, N. Y.
ROckville Centre 6-2366

United Plastic Industries
1300 Water Street
Vassar, Mich.
VAssar 2431

A. H. Wirz Co. Inc.
Fourth and Townsend Streets
Chester, Pa.
CHester 3-6281

CONTAINERS
(Plastic-Coated Glass)

Owens-Illinois Glass Co.
Adams & 14th Streets
Toleo, O.
CHerry 2-6543

Wheaton Plastics Co.
Millville, N. J.
TAylor 5-1400

CONTAINERS
(Screw-on Top)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

Page 99

CONTAINERS
(Stainless Steel)

Emson Research, Inc.
118 Burr Court
Bridgeport 5, Conn.
EDison 6-2553

Pages 120, 127

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

Tubing Seal Cap, Inc.
San Gabriel, Calif.

CONTAINERS
(Tin and Black Plate)

American Can Co.
100 Park Avenue
New York, N. Y.
MUrray Hill 6-4900

Page 9

Continental Can Co.
100 East 42nd Street
New York 14, N. Y.
OXford 7-1200

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Crown Cork & Seal Co., Inc.
Can Division
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

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CONTAINER FINISHING AND DECORATING

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

Monroe-Danford & Co.
50 48th Street
Weehawken, N. J.
UNion 6-1277

COVER CAPS AND CLOSURES

Allied Professional Associates
P. O. Box 233
Buffalo 21, N. Y.
PLaza 8577
(Pharmaceutical only)

Armstrong Cork Co.
5403 Cornell Avenue
Lancaster, Pa.

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
OLive 3-2260

Page 116

Colt's Plastic Co.
Putnam, Conn.
WAlnut 3-9514

Eastern Cap & Closure Co.
725 N. Haven Street
Baltimore 5, Md.
EAstern 7-5640

Page 112

Gilbert Plastics, Inc.
1415 Chestnut Avenue
Hillside 5, N. J.
WAverly 6-4008

L & H Plastics Inc.
189 Webster Avenue
Bridgeport 7, Conn.

Line Novelty Manufacturing Co.
P. O. Box 1386
Waterbury 20, Conn.

Ludwig Closures
185 Oakland Street
Brooklyn 22, N. Y.
EVergreen 3-2197

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Mack Molding Co.
Wayne, N. J.
MOuntain View 8-0800

Metal Fabrications, Inc.
203 Cherry Street
Waterbury 20, Conn.

Monroe-Danford & Co.
50 48th Street
Weehawken, N. J.
UNion 6-1277

Pegasus International Corp.
1 East 53rd Street
New York 22, N. Y.
PLaza 8-2790
(Agents for Pautry Aluminum, Bellegarde (Ain) France)

Pharma Plastics Inc.
205 S. Smallwood Street
Baltimore 23, Md.
GIlmore 5-7311

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

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Risdon Mfg. Co.
Naugatuck, Conn.
PArk 9-8231

Scott Plastics
410 Windsor Street
Hartford 5, Conn.

Sterling Seal Co.
316 West 16th Street
Erie, Pa.
ERie 4-1568

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

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Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600

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West Penn Mfg. & Supply Corp.
809 Second Avenue
Brackenridge, Pa.
ACademy 4-5252

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Wheeling Stamping Co.
2116 Water Street
Wheeling, W. Va.
CEdar 3-4770

A. H. Wirz, Inc.
Fourth & Townsend Streets
Chester, Pa.
CHester 3-6281

CUSTOM FILLERS

(These companies fill for the trade — many supply filled aerosol products for private labels)

Acrolite Products Inc.
106 Ashland Avenue
West Orange, N. J.
ORange 4-2558

AeriForm Products Co.
23400 Park Street
Dearborn, Mich.
LOgan 3-2102

Aerocide Dispensers Ltd.
P. O. Box 9—Weston
Toronto 15, Ont., Canada
CHerry 4-1101

Aero-Fill Co.
Third Avenue
Ranson, West Va.
Charles Town 988

Aerosol Bug Blitzer Co.
10 Dell Park Avenue
Toronto, Ont., Canada

Aerosol Corp. of the South
P. O. Box 148
Arlington, Tenn.
UNiversity 7-2254

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Aerosol Industries
Division of Zenith Drug Corp.
1 Vesey Street
Newark, N. J.
MArket 2-4262

Aerosol Methods
Ridge Road
Tylersport, Pa.
ALpine 7-6032

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Aerosol of Georgia
913 Boulevard N.E.
Atlanta 8, Ga.
TRinity 4-3522

Aerosol Techniques, Inc.
111 Silliman Avenue
Bridgeport, Conn.
EDison 6-0176

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Aeropack, Inc.
5000 W. 41st Street
Chicago 50, Ill.
LAfayette 3-5600

Airosol Co., Inc.
525 N. 11th Street
Neodesha, Kans.
Neodesha 149

Allied Professional Associates
P. O. Box 233
Buffalo 21, N. Y.
PLaza 8577

American Aerosol Corp.
889 Gordon Street
Holland, Mich.
EXport 2-3025

AMR Chemicals Co., Inc.
985 East 35th Street
Brooklyn, N. Y.
CLoverdale 3-8300

Arlenge Laboratories
34 Hubert Street
New York 13, N. Y.
BEekman 3-6818

Armstrong Laboratories
421 LaGrange Street
W. Roxbury, Mass.
FAirview 3-7404

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Associated Brands, Inc.
50 Wallabout Street
Brooklyn, N. Y.
ULster 5-2900

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Astoria Manufacturing Co.
42-02 Vernon Boulevard
Long Island City, N. Y.

G. Barr & Co.
3601 S. Racine Avenue
Chicago, Ill.
YArds 7-1700

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G. Barr & Co.
4747 Bronx Boulevard
Bronx, N. Y.

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Berkshire Aerosol Co.
394 Linde Street
Bridgeport, Conn.

Capital Packaging
1441 S. Circle Avenue
Forest Park, Ill.
COlumbus 1-6295

Cardel Enterprises
Bethridge Rd. Rexdale
Toronto, Canada
CHerry 4-1123

Chase Products Co.
Gardener Road
Broadview, Ill.
FIllmore 5-1222

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Chemical Specialties Corp.
1007 West Maryland
Evansville 10, Ind.
HArrison 5-1101
(high-pressure only)

Claire Manufacturing Co.
7642 Vincennes Avenue
Chicago 20, Ill.
ABerdeen 4-6400

Claire Manufacturing Co.
1200 N.W. 23rd Avenue
Ft. Lauderdale, Fla.
LUdlow 3-7440

Cleveland Aerosol Packaging
9801 Harvard Avenue
Cleveland, O.
VUlcan 3-4800

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Connecticut Chemicals (Canada) Ltd.
Curity Avenue & Hellinger Road
Toronto, Ont., Canada
PLymouth 5-5249

Continental Filling Corp.
123 Hazel Street
Danville, Ill.
Danville 742

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Dettlebach Chemical Corp.
Peachtree Road
Atlanta, Ga.

Diamond Chemical Co.
Glen Gardiner, N. J.
CAlifon 138J

Diamond Chemical Co.
630 Dorchester Street West
Montreal, Quebec, Canada
UNiversity 6-2104

T. J. Dunham Paint Co.
115 Woodward Avenue
Yonkers, N. Y.
YOnkers 8-2828

Empress Cosmetic Co.
Bethpage, L. I.

Embassy Laboratories
2896-98 Fulton Street
Brooklyn, N. Y.

Eska Chemical Corp.
352 Livonia Avenue
Brooklyn, N. Y.
DIckens 2-5205

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Eveready Pressurized Prod., Inc.
1022 Belt Line Avenue
Cleveland, O.
SHadyside 1-1388

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Fluid Chemical Co., Inc.
878 Mt. Prospect Avenue
Newark, N. J.
HUmboldt 4-1000

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Fuld Bros., Inc.
702 South Wolfe Street
Baltimore 31, Md.
BRoadway 6-7400

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Gabriel Manufacturing Co.
Maple Avenue
Haverstraw, N. Y.
HAverstraw 9-3236

Gard Industries, Inc.
1739 Harding Road
Northfield, Ill.
Wilmette 7007

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Gebauer Chemical Co.
9408-10 St. Catherine Avenue
Cleveland, O.
BRoadway 1-5252

Haas Chemical Corp.
Aerosol Packaging Division
W. Linden and N. 8th Avenue
Scranton 3, Pa.
DIamond 4-2064

Hampton Products
Hester Street
Portland, Pa.
TWin Oaks 7-6103

Hysan Products Co.
932 West 38th Street
Chicago, Ill.
VIrginia 7-1168

IKI Manufacturing Co.
107 Maple Court
Edgerton, Wisc.
EDgerton 144

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Illinois Bronze Co.
2023 S. Clark Street
Chicago, Ill.

Inland Paint & Chem. Co.
2144 West 49th Street
Chicago, Ill.
VIrginia 7-7511

Jet-Air Inc.
12 18th Avenue
Paterson, N. J.

Kan-Jax Chem. Co.
2500 Summit Avenue
Kansas City, Mo.

Kerr Chemicals, Inc.
9 So. Fairview Avenue
Park Ridge, Ill.
TAlcott 3-4151

Kolmar Laboratories
224 N. Broadway
Milwaukee, Wisc.
BRoadway 3-7984

LaMaur, Inc.
110 N. Fifth Street
Minneapolis, Minn.
FEderal 8-4771

Larson Laboratories
1320 Irwin Avenue
Erie, Pa.

Lawson Chemical Products Co.
5634 Selmaraine Drive
Culver City, Calif.
TExas 0-1627

Lenk Manufacturing Co.
Franklin, Ky.

Marcy Laboratories, Inc.
2161 N. California Avenue
Chicago 47, Ill.
SPaulding 2-3900

McGuire & Co.
833 47th Avenue
Oakland, Calif.

Midwest Aerosols
7644 S. Vincennes Avenue
Chicago 20, Ill.
ABerdeen 4-6400

Midwest Consultants, Inc.
3500 DeKalb Street
St. Louis 18, Mo.
PRospect 1-5750

Mohawk Brush Co.
Aerosol Filling Division
Fuller Road
Albany, N. Y.

Mohawk Furniture Finishing Products Inc.
175 West Main Street
Amsterdam, N. Y.
VIctor 3-1380

Morton Co.
1625 N. Highland
Memphis 8, Tenn.

National Chemical Laboratories, Inc.
420 Monceaux Road
West Palm Beach, Fla.

National Spray Can Filling Corp.
6202 Avenue U
Brooklyn, N. Y.
CLoverdale 1-3350

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Old Empire, Inc.
Mt. Prospect & Verona Ave.
Newark, N. J.
HUmboldt 4-2121

Pages 105, 117

Pactra Chemical Co., Inc.
1213 North Highland
Los Angeles 38, Calif.
HOllywood 9-7284

Par Industries, Inc.
2193 East 14th Street
Los Angeles 21, Calif.
TRinity 2668

Page 120

Pennsylvania Engineering Co.
1107-21 N. Howard Street
Philadelphia 23, Pa.
MArket 7-3635

Peterson Filling & Packaging Co.
Hegeler Lane
Danville, Ill.
DAnville 8500

Pages 120, 129

Plaze, Inc.
9401 Watson Industrial Park
St. Louis, Mo.
WOodland 1-3564

PowrPak-ConnChem Inc.
145 Howard Avenue
Bridgeport, Conn.
FOrest 7-6495

Page 118

Pressure Products Co.
Box 342
West Chester, Pa.
OWen 6-3363

Prestige Laboratories Inc.
Box 821
York, Pa.

Products Packaging Inc.
Box 1076, Station A
Cleveland 2, O.
WOodbine 1-8800

Pages 83, 119

Professional Products Laboratories
1138 East North Avenue
Baltimore 2, Md.

Protection Chemical Products Co.
5747 Souligny Street
Montreal 5, Canada

Puritan Distributing Co.
Aerosol Filling Division
160 Washington Street N.
Boston, Mass.
RIchmond 2-3318

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Rand Chemical Products Co.
2626 S. Dearborn Street
Chicago, Ill.
CAlumet 5-2866

W. T. Rawleigh Co.
101 S. Liberty Avenue
Freeport, Ill.

Red Devil Chemicals Inc.
30 North West Street
Mount Vernon, N. Y.
MOunt Vernon 4-9880
(Paints and related products)

Page 118

Red Lion Chemical Co.
146 N. Charles St.
Red Lion, Pa.
(Paint Only)

Red Ram Chemical Co.
755 Utica Avenue
Brooklyn, N. Y.

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Regal Chemical Corp.
115 Dobbin Street
Brooklyn 22, N. Y.
EVergreen 9-8727

Rex Research Corp.
600 Montrose Avenue
Toledo 7, O.
JOrdan 4633

Ronor Corp.
Div. of Engine Parts Mfg. Co.
1360 West 9th Street
Cleveland, O.
MAin 1-5294

Rose Manufacturing Co.
200 Water Street
Poughkeepsie, N. Y.

Gene Rose Co., Inc.
1637 S. Kilbourn Avenue
Chicago, Ill.
LAwndale 1-7000

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Schaefer Paint Co.
334 Marion Street
Lancaster, Pa.

Scranton Corp.
Aerosol Packaging Division
Scranton 9, Pa.

707 Co.
1685 Carter Avenue
New York 57, N. Y.
TRemont 8-8700

Shield Chemical Co.
50 Brook Road
Needham Heights, Mass.
HIllcrest 4-6120

Southeastern Packaging Co.
P. O. Box 8057
Madiera Beach
St. Petersburg, Fla.

Page 118

Spray Mist Inc.
952 Utica Avenue
Brooklyn 3, N. Y.

Sprayon Products Co.
2075 East 65th Street
Cleveland, O.
HEnderson 2-2900

Sprayway, Inc.
1200 N.W. 23rd Avenue
Fort Lauderdale, Fla.
JAckson 4-2545

Stalfort Pressure-Pak Corp.
321 W. Pratt St.
Baltimore 1, Md.
SAratoga 7-4760

Pages 2, 117

Stanley Home Products Co.
116 Pleasant Street
Easthampton, Mass.

Stewart-Hall Chemical Co.
17 Northwest Street
Mount Vernon, N. Y.

Strobel Products, Inc.
2609 Congress St.
Louisville, Ky.
SPring 2-2705

Strouse, Inc.
Main & Astor Streets
Norristown, Pa.
BRoadway 2-2211

John Struthers & Co. Ltd.
5581 Pare Street
Montreal, Canada
RIverside 8-7623

Page 121

Sun Lac Inc.
274 Lafayette Street
Newark 5, N. J.
MArket 3-7727

Pages 111, 117

S & W Manufacturing Chemists
P. O. Box 274
Gainesville, Fla.
FRanklin 2-2138

Texas Aerosols, Inc.
201 Velasco Street
Houston 3, Tex.
CA 2-0338

Page 118

Texas Rice Oils Corp.
5245 Ashbrook Street
Houston, Tex.

Thomasson of Pa., Inc.
Washington & Ford Streets
Norristown, Pa.

Page 118

Titan Chemical Industries Inc.
3005 Huron Street
Denver, Colo.

Page 121

Tops Products Co.
203 E. 12th Street
New York 3, N. Y.

United States Aerosol Specialties Corp.
300 Decatur Street
New Orleans 12, La.
EXpress 4004

Van Pell Chemical & Supply Corp.
48 East First Street
New York 3, N. Y.

Virginia Smelting Co.
West Norfolk, Va.

Western Filling Corp.
4151 Bandini Boulevard
Los Angeles 23, Calif.
ANgelus 2-4168

Page 120

Whitmire Research Labs., Inc.
339 S. Vanderventer Street
St. Louis 10, Mo.

DIP TUBING

Action Plastics Inc.
Affiliate of Colorite Plastics of N. J.
50 California Avenue
Paterson, N. J.

Anasite
3575 Toughy Avenue
Skokie, Ill.

Anchor Plastics
30-36 36th Street
Long Island City, N. Y.
RAvenswood 9-1494

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Hydrawlik Co.
131 East First Avenue
Roselle, N. J.
CHestnut 5-0368

Jordan Manufacturing Co.
Des Plaines, Ill.
VAnderbilt 4-4121

Plastic Extruded Products Co.
308 Port Avenue
Elizabeth 1, N. J.
ELizabeth 4-2300

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600

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EMULSIFIERS

American Cholesterol Products Inc.
Amerchol Park
Edison, N. J.
LIberty 8-6600

Antara Chemicals Division
General Aniline & Film Corp.
435 Hudson Street
New York 14, N. Y.
WAtkins 4-0600

Page 15

Atlas Powder Co.
Chemicals Division
Wilmington 99, Del.
OLympia 8-6511

Dispergent Co.
P. O. Box 55
Guilford, Conn.
GLendale 3-2212

Emulsol Corp.
75 E. Wacker Drive
Chicago, Ill.
FInancial 6-2960

Knapp Products, Inc.
178 Hamilton Avenue
Lodi, N. J.
PRescott 9-6945

Ninol Laboratories Inc.
1719 So. Clinton Street
Chicago 16, Ill.
WHitehall 4-6323

Nopco Chemical Co.
Langdon & Potter Streets
Harrison, N. J.

Rohm & Haas Co.
Agricultural Chemicals Dept.
Washington Square
Philadelphia 5, Pa.

Sole Chemical Corp.
27 E. Monroe Street
Chicago 3, Ill.
STate 2-9430

EQUIPMENT

Can Unscramblers

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2123

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Dudley Machinery Corp.
P. O. Box 143
Santa Clara, Calif.

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Horix Manufacturing Co.
Corliss Station
Pittsburgh 4, Pa.

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Mojonnier Associates Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

U. S. Bottlers Machinery Co.
4015 North Rockwell Street
Chicago 18, Ill.
IRving 8-0263

Capping Equipment

Arenco Machine Co.
25 West 43rd Street
New York 36, N. Y.
BRyant 9-9250

Page 108

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

Page 99

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Consolidated Packaging Machinery Corp.
1400 West Avenue
Buffalo 13, N. Y.

Index Industrial Corp.
150 Broadway
New York 38, N. Y.
BEekman 3-4180

Resina Automatic Machinery Co. Inc.
572 Smith Street
Brooklyn 31, N. Y.
TRiangle 5-5496

Scientific Filter Co.
57 Rose Street
New York 38, N. Y.
BEekman 3-1210

Tite-Cap Machine Division
Canning Machinery Co.
5105 S.W. 45th Avenue
Portland 1, Ore.

Cartoners and Carton Packers

Bivans Corp .
2431 Dallas Street
Los Angeles 31, Calif.

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2133

Clybourn Machine Corp.
6479 N. Avondale
Chicago 31, Ill.
NEwcastle 1-8000

J. L. Ferguson Co.
Route 52
Joliet 3, Ill.

R. A. Jones & Co.
P. O. Box 485
Cincinnati, O.

National Equipment Corp.
153-7 Crosby Street
New York, N. Y.
CAnal 6-5333

Pneumatic Scale Corp.
65 Newport Avenue
North Quincy 71, Mass.

Standard-Knapp Division
Emhart Mfg. Co.
Portland, Conn.

Stokes & Smith Co.
4915 Summerdale Avenue
Philadelphia, Pa.

Triangle Package Machinery Co.
6633 West Diversey Boulevard
Chicago, Ill.
TUxedo 9-0200

Container Cleaning and Purging Equipment

Chisholm-Ryder Co. of Pennsylvania
Bletter Avenue
Hanover, Pa.
MElrose 7-2123

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Continental Can Co.
100 East 42nd Street
New York 14, N. Y.
OXford 7-1200

Page 87

Crown Cork & Seal Co., Inc.
Can Division
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

Page 91

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Hope Machine Co.
9400 State Road
Philadelphia 4, Pa.
MAyfair 4-7271

Page 112

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

Page 72

Mojonnier Associates Inc.
9151 Fullerton Ave.
Franklin Park, Ill.
GLadstone 5-1013

Standard-Knapp Division
Emhart Manufacturing Co.
Portland, Conn.

U. S. Bottlers Machinery Co.
4015 North Rockwell Street
Chicago 18, Ill.
IRving 8-0263

Coding Devices

American Marking Corp.
71 Lock Street
Newark 1, N. J.

Bivans Corp.
2431 Dallas Street
Los Angeles 31, Calif.

Adolph Gottscho Inc.
6 Evans Terminal
Hillside, N. J.
ELizabeth 2-9557

Hope Machine Co.
9400 State Road
Philadelphia 14, Pa.
MAyfair 4-7271

Page 112

Industrial Marking Equipment Co.
655 Berriman Street
Brooklyn 8, N. Y.
NI 9-3305

Kiwi Coders Corp.
4027 North Kedzie Avenue
Chicago 18, Ill.

Page 108

Mojonnier Associates Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

John R. Nalbach Eng. Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

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Compressors

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Chicago Pneumatic Tool Co.
8 East 44th Street
New York 17, N. Y.
MUrray Hill 7-1700

Gardner-Denver Co.
Quincy, Ill.

Ingersoll-Rand
11 Broadway
New York 4, N. Y.
DIgby 4-6070

EQUIPMENT (Concluded)

Norwalk Co., Inc.
South Norwalk, Conn.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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Conveyors

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Jeffrey Manufacturing Co.
828 N. Fourth Street
Columbus 16, O.

Link Belt Co.
301 West Pershing Road
Chicago 9, Ill.

Mojonnier Associates Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Ingredient Fillers

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Elgin Manufacturing Co.
200 Brook Street
Elgin, Ill.

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

Pages 116, 125

Food Machinery & Chemical Corp.
342 W. Julian Street
San Jose 6, Calif.
CYpress 4-8124

Hope Machine Co.
9400 State Road
Philadelphia 14, Pa.
MAyfair 4-7271

Page 112

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

Page 72

Mojonnier Associates Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

MRM Co., Inc.
191 Berry Street
Brooklyn 11, N. Y.
EVergreen 7-3936

National Instrument Co.
2701 Rockwood Avenue
Baltimore 15, Md.
FOrest 7-9124

Packer Machinery Co.
109 14th Street
Brooklyn 15, N. Y.
HU 9-8850

The Pfaudler Co. Division
Pfaudler Permutit Inc.
Clark Street
Rochester 3, N. Y.

Ingredient Filters

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

Pages 116, 125

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

Page 72

Scientific Filter Co.
57 Rose Street
New York, N. Y.
BEekman 3-1210

Ingredient Filter Sheets

Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

Pages 116, 125

Ingredient Mixers

Abbe Engineering Co.
420 Lexington Avenue
New York 17, N. Y.
COrtland 7-1115

Pressure Tester and Venter

Robins Engineering Co.
208 Maple Avenue
North Haven, Conn.

Production Filling Lines

Builders Sheet Metal Works Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390
(Small production cold fill)

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Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373
(Pressure only)

Karl Kiefer Machine Co.
919 Martin Street
Cincinnati 2, O.

Page 72

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013
(pressure & cold)

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

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National Instrument Co.
2701 Rockwood Avenue
Baltimore 15, Md.
FOrest 7-9124

Oil Equipment Laboratories
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900
(pressure only)

Page 108

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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Labelers

Burt Machine Co.
401 E. Oliver Street
Baltimore 2, Md.
SAratoga 7-2120

Chisholm-Ryder Co. of Pennsylvania
Blettner Avenue
Hanover, Pa.
MElrose 7-2133

Globe Ticket Co.
112 North 12th Street
Philadelphia 7, Pa.
LOcust 7-2800

Labelette Co.
2611 D. Leland Avenue
Chicago 25, Ill.
COrnelia 7-3442

Potdevin Machine Co.
200 North Street
Teterboro, N. J.

Standard-Knapp Division
Emhart Manufacturing Co.
Main Street
Portland, Conn.

LABORATORY FILLING EQUIPMENT

Aero-Matic Laboratories Corp.
483 Nepperhan Avenue
Yonkers, N. Y.
GReenleaf 6-2542

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Builders Sheet Metal Works
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

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Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

Page 96

Druk-Pak Inc.
36 Merkurstrasse
Zurich, Switzerland

Page 122

Robert A. Foresman, Jr.
Apparatus Division
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0596

Page 114

J. G. Machine Works
452 West 46th Street
New York 36, N. Y.
CIrcle 6-6373

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833

Page 116

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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LABORATORY EQUIPMENT (Miscellaneous)

Aero-Matic Laboratories Corp.
483 Nepperhan Avenue
Yonkers, N. Y.
GReenleaf 6-2562
(Pry Tester)

Page 103

Beckman Instruments Inc.
2500 Fullerton Road
Fullerton, Calif.
LAmbert 5-8241
(gas chromatograph)

Bete Fog Nozzle Inc.
309 Wells Street
Greenfield, Mass.
(spray counter)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

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Chicago Apparatus Co.
1735 North Ashland Avenue
Chicago 22, Ill.
BRunswick 8-4630
(gas chromatograph)

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

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Fischer & Porter
111 Warminster Road
Hatboro, Pa.
OSborne 5-6000, Ext. 450
(aerosol compatibility tube)

Robert A. Foresman, Jr.
Apparatus Division
1690 Margaret Street
Philadelphia 24, Pa.
PIoneer 3-0569

Page 114

Greenbrier Instruments Inc.
Ronceverte, West Va.
(gas chromatograph)

LeMay Machine Co.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050
(gasser-shaker)

T. M. Long Co.
Somerville, N. J.
(Pycnometer)

Monsen Refrigeration
228 Montgomery Street
Bloomfield, N. J.
PIlgrim 3-0634
(Refrigerated Cabinets)

Page 101

John R. Nalbach Engineering Co.
6139 Ogden Avenue
Chicago 50, Ill.
OLympic 2-0833
(gasser-shaker)

Page 116

The Perkin-Elmer Corp.
780 Main Avenue
Norwalk, Conn.
(gas chromatograph)

Phoenix Precision Instrument Co.
3803 N. Fifth Street
Philadelphia 40, Pa.
(Device for measuring & recording aerosol dust & smoke concentrations)

C. A. Spalding Co.
2242 East Vanango Street
Philadelphia 34, Pa.
CUmberland 8-2021
(cap clinching machines)

Wilkens Instrument & Research Inc.
P. O. Box 313
Walnut Creek, Calif.
YEllowstone 5-1459
(gas chromatograph)

LEAK DETECTING EQUIPMENT (Electronic)

General Electric Co.
1 River Road
Schenectady, N. Y.

Mine Safety Appliances Co.
230 North Braddock Avenue
Pittsburgh 8, Pa.

National Instrument Laboratories Inc.
828 Evarts Street N.E.
Washington, D. C.

(Hot Water Test Tanks)

Builders Sheet Metal Works, Inc.
108 Wooster Street
New York 12, N. Y.
CAnal 6-5390

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Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

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Island Equipment Corp.
P. O. Box 380276
Miami 38, Fla.

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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(Container Fill Inspection Systems)

Industrial Nucleonics Corp.
1205 Chesapeake Avenue
Columbus, Ohio

PROPELLANT STORAGE & HANDLING SYSTEMS

Doyle & Roth Manufacturing Co.
136 24th Street
Brooklyn 32, N. Y.

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Vilter Manufacturing Co.
2217 S. First Street
Milwaukee 7, Wisc.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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PUMPS

Aurora Pump Division
The New York Air Brake Corp.
62 Loucks Street
Aurora, Ill.

Arthur Colton Co. Division
Snyder Tool & Engineering Co.
3598 E. Lafayette
Detroit 7, Mich.

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Ertel Engineering Corp.
8-14 N. Front Street
Kingston 8, N. Y.

Pages 116, 125

The LaBour Co., Inc.
Elkhart, Ind.

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Viking Pump Co.
Cedar Falls, Iowa

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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REFRIGERATION EQUIPMENT

Atlas Engineering Co.
1901 White Street
Des Plaines, Ill.
VAnderbilt 4-5433

H. Loeb & Son
4600 Lancaster Avenue
Philadelphia, Pa.

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Monsen Refrigeration
228 Montgomery Street
Bloomfield, N. J.
PIlgrim 3-0634

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Vilter Manufacturing Co.
2217 S. First Street
Milwaukee 7, Wisc.

The Wallace Co.
41 California Street
Bridgeport, Conn.
EDison 6-1141

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VALVES
(for propellant and product transfer)

Bastian-Blessing Co.
4201 W. Peterson Avenue
Chicago, Ill.
MUlberry 5-1121

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VALVE ASSEMBLY UNIT

American Special Machine Co.
1401 Western Avenue
Chicago 14, Ill.
EAstgate 7-2220

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WEIGHERS & CLASSIFIERS

Exact Weight Scale Co.
538 E. Town Street
Columbus 15, O.
CApital 4-6187

Hi-Speed Checkweigher Co. Inc.
605 West State Street
Ithaca, N. Y.

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Pennsylvania Scale Co.
Bareville, Pa.

Scale Specialties & Systems Inc.
115 Harrison Avenue
Roseland, N. J.
CApital 6-5827

Toledo Scale Co.
Toledo 13, O.

Weigh Right Automatic Scale Co.
Joliet, Ill.

MISCELLANEOUS EQUIPMENT
(Aerosol Dispensing Devices Automatic)

Syncro-Mist Controls, Inc.
270 Madison Avenue
New York, N. Y.
MUrray Hill 5-4650

(Agitator Pellet Feeders)

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

(Container Printers)

Index Industrial Corp.
150 Broadway
New York 38, N. Y.
BEekman 3-4120

(Fusable Safety Solder Seal—for Valves)

IKI Manufacturing Co.
107 Maple Street
Edgerton, Wis.

Page 120

(Spray Can Handle)

Alfco, Inc.
2031 Granville Avenue
Los Angeles 25, Calif.

(Tube Inserting Devices)

Chase Equipment Corp. of N. Y.
47 East 19th Street
New York 3, N. Y.
ORegon 7-3220

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

(Wall Holder)

Lorac Industries
96 MacArthur Lane
Tarrytown, N. Y.
MEdford 1-3432

Useful Products Corp.
24 N. Clover Drive
Great Neck, N. Y.
HU 7-2517

(Teflon Transfer Hose)

Aero-Quip Corp.
300 S. East Avenue
Jackson, Mich.
STate 2-0361

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Nielsen Hydraulic Equipment
6 Penn Place
Pelham Manor, N. Y.
PElham 8-3000

(Trident & Lambert Meters)

Neptune Motor Co.
19 West 50th Street
New York 20, N. Y.

(Valve Feeder & Inserter)

Mojonnier Associates, Inc.
9151 Fullerton Avenue
Franklin Park, Ill.
GLadstone 5-1013

Pneuma-Serve Ltd.
42 Queen Elizabeth Boulevard
Toronto 14, Ontario (Canada)

ESSENTIAL OILS—
See "Perfuming Materials"

GASKETS, FLOWED,
(for valves)

Bristol Flowed Gasket Co.
P. O. Box 382
Southington, Conn.

Crown Cork & Seal Co., Inc.
Can Division
9300 Ashton Road
Philadelphia 36, Pa.
ORchard 3-5100

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Dewey & Almy Chemical Division
W. R. Grace & Co.
62 Whittemore Avenue
Cambridge 40, Mass.

Handy Button Machine Co.
2255 S. Rockwell Street
Chicago 8, Ill.
BIshop 7-7400

Sterling Seal Co.
316 West 16th Street
Erie, Pa.
ERie 4-1568

GIBBERELLIC ACID

Abbott Laboratories-Chemical Sales Division
14th and Sheridan Avenue
N. Chicago, Ill.
DExter 6-3080

Agricultural Biologicals Corp.
35 Wilbur Street
Lynbrook, L. I.
LYnbrook 3-7000

Eli Lilly & Co.
Agricultural & Industrial Division
740 S. Alabama Street
Indianapolis 6, Ind.

Merck & Co.
Chemical Division
Rahway, N. J.
RAhway 7-1200

S. B. Penick & Co.
50 Church Street
New York 8, N. Y.
CO 7-1970

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Chas. Pfizer & Co.
630 Flushing Avenue
Brooklyn 6, N. Y.
EVergreen 8-3800

Page 11

Velsicol Chemical Corp.
330 E. Grand Avenue
Chicago 11, Ill.
DElaware 7-7383

INSECT REPELLENTS

Cowles Chemical Co.
Organic Chemicals Dept.
Cleveland 3, O.
(Diethyl Toluamide)

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Glenn Chemical Co.
2735 N. Ashland Avenue
Chicago 14, Ill.
EAstgate 7-9350
(Tabutrex)

R. W. Greeff & Co.
10 Rockefeller Plaza
New York 20, N. Y.
CIrcle 6-9680
(Diethyl Toluamide)

Page 93

Hercules Powder Co.
970 Market Street
Wilmington 99, Del.
(Diethyl Toluamide)

McLaughlin Gormley King Co.
1715 S.E. Fifth Street
Minneapolis, Minn.
(MGK Repellent 11, MGK Repellent 326)

Page 19

Stauffer Chemical Co.
380 Madison Avenue
New York 17, N. Y.
OXford 7-0600

Page 22

Union Carbide Chemicals Co.
Div. Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000
(Crag Fly Repellent)

Pages 70, 71

INSECTICIDE TOXICANTS

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.
CIrcle 7-0100
(Malathion)

Page 81

Chemical Insecticide Corp.
30 Whitman Avenue
Metuchen, N. J.
LIberty 9-2300
(Rotenone resins)

Conray Products Co.
129 Pearl Street
New York 5, N. Y.
HAnover 2-6970
(DDT, Lindane)

E. I. du Pont de Nemours & Co. (Inc.)
Wilmington 98, Del., Grasselli Chemicals Dept.
(Methoxychlor)

Fairfield Chemical Div.
Food Machinery & Chemical Corp.
441 Lexington Avenue
New York 17, N. Y.
OXford 7-1940
(Pyrethrum Concentrates, Rotenone Resins, and Synergists)

Page 7

Geigy Chemical Co.
P. O. Box 450
Yonkers, N. Y.
(Methoxychlor, DDT, Diazinon)

Pages 12, 13

R. W. Greeff & Co.
10 Rockefeller Plaza
New York 20, N. Y.
CIrcle 6-9680
(DDT)

Page 93

Hercules Powder Co.
984 Market Street
Wilmington 99, Del.
OLympia 8-7211
Thanite Delnav)

Olin Mathieson Chemical Corp.
10 Light Street
Baltimore, Md.
PLaza 2-8300
(Pyrethrum, Synergists, Rotenone Resins, and DDT)

McLaughlin Gormley King Co.
1715 S.E. Fifth Street
Minneapolis, Minn.
(Pyrethrum, Allethrin, and Synergists)

Page 19

S. B. Penick & Co.
50 Church Street
New York 8, N. Y.
COlumbus 7-1970
(Pyrethrum, Synergists and Rotenone Resins)

Page 30

Prentiss Drug & Chemical Co.
101 West 31st Street
New York 1, N. Y.
PEnnsylvania 6-6766
(Pyrethrum, Synergists Sulfoxide, and Rotenone Resins)

Page 4

Rohm & Haas Co.
222 W. Washington Square
Philadelphia 5, Pa.
LOcust 3-9860
(Lethane, Perthane and Rhothane)

Shell Chemical Corp.
380 Madison Avenue
New York 17, N. Y.
JUdson 6-5000
(Aldrin, Dieldrin, and Endrin)

Stauffer Chemical Co.
380 Madison Avenue
New York 17, N. Y.
OXford 7-0600
(DDT, Parathion, Malathion)

Page 22

Velsicol Chemical Corp.
330 E. Grand Avenue
Chicago 11, Ill.
DElaware 7-7383
(Chlordane)

LABEL AND PACKAGE DESIGN

(All the major can companies maintain art staffs to assist their customers.)

Cameo Die & Label Co.
154 W. 14th Street
New York 11, N. Y.
ORegon 5-0228

Richard de Bang Co.
826 Seventh Avenue
New York 17, N. Y.
CIrcle 5-0638

Donrico Inc.
438 West 37th Street
New York 18, N. Y.
WIsconsin 7-7828

Walter Frank Organization
4100 Warren Avenue
Hillside, Ill.
LInden 4-6600

Page 109

A. H. Wirz, Inc.
Fourth & Townsend Sts.
Chester, Pa.
CHester 3-6281

LANOLIN AND LANOLIN DERIVATIVES

American Cholesterol Products, Inc.
Talmadge Road
Edison, N. J.
LIberty 8-6600

American Lanolin Corp.
Railroad Street
Lawrence, Mass.
LAwrence 3-2729

Croda, Inc.
15 East 26th Street
New York 10, N. Y.
MUrray Hill 3-3089

Page 17

Malmstrom Chemical Corp.
259 Parkhurst Street
Newark 5, N. J.

N. I. Malmstrom & Co.
147 Lombardy Street
Brooklyn 22, N. Y.
EVergreen 8-7626

Robinson Wagner Co.
628 Waverly Avenue
Mamaroneck, L. I., N. Y.

Page 21

NYLON RESINS (for manufacture of containers)

E. I. du Pont de Nemours & Co.
Polychemicals Division
Wilmington 98, Del.
OLympia 4-5121

ODOR NEUTRALIZERS

Alpine Aromatics
398 Main Street
Metuchen, N. J.
LIberty 8-7202
(Namee)

Solvay Process Div.
Allied Chemical & Dye Corp.
61 Broadway
New York 6, N. Y.
HAnover 2-7300
(Ozene)

Page 27

International Wax Refining Co.
99 E. Hawthorne Avenue
Valley Stream, N. Y.
(Intasol)

Motomco, Inc.
Terminal Avenue
Clark, N.J.
FUlton 1-3033
(Metazene)

Page 89

Prentiss Drug & Chemical Co.
101 West 31st Street
New York 1, N. Y.
PEnnsylvania 6-6766
(Meelium)

Page 4

PERFUMING & ODORIZING MATERIALS

Alpine Aromatics
398 Main Street
Metuchen, N. J.
LIberty 8-7202

Aromatic Products, Inc.
235 Fourth Avenue
New York 3, N. Y.
ORegon 4-9114

Ph. Chaleyer, Inc.
160 East 56th Street
New York, N. Y.

Antoine Chiris Co.
220 East 23rd Street
New York, N. Y.
LExington 2-6035

Compagnie Parento, Inc.
68 Brook Street
Croton-on-Hudson, N. Y.

De Laire, Inc.
242 West 30th Street
New York 1, N. Y.
CHickering 4-7455

Dodge & Olcott, Inc.
180 Varick Street
New York 14, N. Y.
WAtkins 4-3600

Page 75

Dragoco, Inc.
250 West Broadway
New York 13, N. Y.
CAnal 6-5813

P. R. Dreyer Inc.
601 West 26th Street
New York 1, N. Y.
WAtkins 9-1570

Felton Chemical Co.
599 Johnson Avenue
Brooklyn, N. Y.
HYacinth 7-4464

Page 78

Firmenich, Inc.
250 West 18th Street
New York 11, N. Y.
WAtkins 9-5520

Florasynth Laboratories, Inc.
900 Van Nest Avenue
New York 62, N. Y.
TAlmadge 8-6000

Page 110

Fries & Fries
110 East 70th Street
Cincinnati, Ohio
VAlley 1-7200

Page 112

Fritzsche Brothers, Inc.
76 9th Avenue
New York 11, N. Y.
WAverly 9-4100

Page 95

Givaudan-Delawanna, Inc.
321 W. 44th St.
New York 36, N. Y.
CIrcle 5-0300

Page 16

Heine & Co.
601 West 26th Street
New York 1, N. Y.
ORegon 5-9039

Knapp Products, Inc.
178 Hamilton Avenue
Lodi, N. J.
PRescott 9-6945

Lautier Fils Inc.
321 Fifth Avenue
New York 16, N. Y.
MUrray Hill 9-7980

Magnus, Mabee & Reynard, Inc.
16 Desbrosses Street
New York 13, N. Y.
WAlker 5-1110

Page 28

J. Manheimer
214 East 21st Street
New York 10, N. Y.
GRamercy 5-4640

Norda Essential Oil & Chemical Co.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-7878

Page 68

Noville Essential Oil Co.
1312 Fifth Street
North Bergen, N. J.
UNion 7-9080

Orbis Products Corp.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-7660

S. B. Penick & Co.
50 Church Street
New York, N. Y.
COrtland 7-1970

Page 30

Perry Brothers
61-12 32nd Avenue
Woodside 77, L. I., N. Y.
RAvenswood 1-3636

Polak & Schwarz, Inc.
667 Washington Street
New York 14, N. Y.
WAtkins 4-5570

Page 100

Polak's Frutal Works
33 Sprague Avenue
Middletown, N. Y.
MIddletown 2-1065

Rhodia Inc.
60 E. 56th Street
New York 22, N.Y.
PLaza 3-4850

Page 64

Roubechez, Inc.
8 East 12th Street
New York 3, N. Y.
ALgonquin 5-7262

Roure-Dupont, Inc.
366 Madison Avenue
New York, N. Y.
VAnderbilt 6-5830

Schimmel & Co.
601 West 26th Street
New York 1, N. Y.
WAtkins 4-1393

Page 104

Shulton, Inc.
Fine Chemicals Division
630 Fifth Avenue
New York 20, N. Y.
CIrcle 5-6263

Standard Aromatics
88 University Place
New York, N. Y.
ORegon 5-4333

Synfleur Scientific Laboratories
Monticello, N. Y.
Monticello 84

Syntomatic Corp.
114 East 32nd Street
New York 16, N. Y.
MUrray Hill 3-7618

Tombarel Products Corp.
725 Broadway
New York 3, N. Y.
GRamercy 7-4530

Ungerer & Co.
161 Ave. of the Americas
New York 13, N. Y.
ALgonquin 5-4660

Van Ameringen-Haebler, Inc.
521 West 57th Street
New York, N. Y.
CIrcle 6-2700

Pages 24, 25

Van Dyk & Co.
11 William Street
Belleville, N. J.
PLymouth 9-3225

Albert Verley & Co.
1375 E. Linden Avenue
Linden, N. J.
WAbash 5-1105

Verona Chemicals
26 Verona Avenue
Newark 4, N. J.
HUmboldt 3-3200

R. D. Webb & Co.
137 Boston Post Road
Cos Cob, Conn.

PRODUCT CONCENTRATE (Especially for Aerosol Packaging)

Chemical Compounding Co.
262 Huron Street
Brooklyn, N. Y.

Florida Chemists & Engineers Inc.
1709 North Mills Street
Orlando, Fla.
GArden 3-3442

Private Brands Inc.
300 South Third Street
Kansas City 18, Kan.
FInley 2-8780

Propel Chemicals Inc.
262 Huron Street
Brooklyn 22, N. Y.
EVergreen 9-5531

Universal Spray Can Corp.
80 Washington Street
New York 6, N. Y.
DIgby 4-8260

Wilco Co.
4425 Bandini Boulevard
Los Angeles 23, Calif.
ANgelus 3-4105

PROPELLANTS

(Argon)

Air Reduction Sales Co. Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

Page 94

(Fluorinated Hydrocarbons)

E. I. du Pont de Nemours & Co.
Freon Products Division
Wilmington 98, Del.
OLympia 4-5121

Page 6

General Chemical Div., Allied Chemical & Dye Corp.
40 Rector Street
New York 6, N. Y.
HAnover 2-7300

Pages 66, 67

Pennsalt Chemicals Corp.
3 Penn Center Plaza
Philadelphia 2, Pa.
LOcust 4-4700

Union Carbide Chemicals Co.
Division, Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

Pages 70, 71

(Methylene Chloride)

American Mineral Spirits Co.
Mountain Avenue
Murray Hill, N. J.
CRestview 3-0700

Diamond Alkali Co.
925 Euclid Avenue
Cleveland 14, Ohio
MAin 1-6100

Dow Chemical Co.
Midland, Mich.
TEmple 2-2311

Pages 32, 33

E. I. du Pont de Nemours & Co.
Electro Chemicals Dept.
Wilmington 98, Del.
OLympia 4-5121

Frontier Chemical Co.
Municipal Airport Terminal Bldg.
Wichita 15, Kan.

Kolker Chemical Corp.
600 Doremus Avenue
Newark 5, N. J.
MArket 2-4085

Solvay Process Division
Allied Chemical & Dye Corp.
61 Broadway
New York 6, N. Y.
HAnover 2-7300

Page 27

Stauffer Chemical Co.
380 Madison Avenue
New York 17, N. Y.
OXford 7-0600

Page 22

(Nitrogen)

Air Reduction Co. Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

Page 94

Linde Co. Division
Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

National Cylinder Gas Co.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

Ohio Chemical & Surgical Equipment Co.
Division, Air Reduction Co.
1400 E. Washington Avenue
Madison 10, Wisc.

Page 10

(Soluble Gases—including Nitrous Oxide, Carbon Dioxide and CO_2-N_2O Mixtures)

Pure Carbonic Co. Division
Air Reduction Co., Inc.
150 East 42nd Street
New York 17, N. Y.
MUrray Hill 2-6700

Page 94

National Cylinder Gas Co.
1200 N. Claremont Avenue
Chicago 22, Ill.
HUmboldt 6-1462

Ohio Chemical & Surgical Equipment Co.
Division, Air Reduction Co.
1400 E. Washington Avenue
Madison 10, Wisc.

Page 10

Standard Air Co.
335 Paterson Plank Road
Carlstadt, N. J.
GEneva 8-5449

S. S. White Dental Mfg. Co.
211 S. 12th Street
Philadelphia 5, Pa.
WAlnut 3-1621

(Butane and Propane)

Cities Service Oil Co.
Bartlesville, Okla.

Phillips Petroleum Co.
Special Products Division
Bartlesville, Okla.

SHELLAC

William Zinsser & Co.
516 West 59th Street
New York 19, N. Y.
COlumbus 5-2800

Bradshaw Praeger & Co.
3248 West 47th Place
Chicago 32, Ill.
LAfayette 3-2050

Gillespie-Rogers-Pyatt Co.
75 West Street
New York 6, N. Y.
WHitehall 3-9740

Mac-Lac Co.
33 Rector Street
New York 6, N. Y.
WHitehall 3-5230

Mantrose Corporation
1 Hanson Place
Brooklyn 1, N. Y.
STerling 8-1400

F. H. Paul & Stein Brothers
235 5th Avenue
New York, N. Y.
MUrray Hill 4-6370

SILICONES

Dow, Corning Corp.
Midland, Mich.

General Electric Co.
Silicone Products Dept.
Waterford, N. Y.
ADams 8-3330

Silicone Division
Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

TRICHLOROETHANE

American Mineral Spirits Co.
Mountain Avenue
Murray Hill, N. J.
CRestview 3-0700

Dow Chemical Co.
Midland, Mich.
TEmple 2-2311

Pages 32, 33

Merchants Chemical Co.
60 East 42nd Street
New York, N. Y.
MUrray Hill 2-8712

Union Carbide Chemicals Co.
Division of Union Carbide Corp.
30 East 42nd Street
New York 17, N. Y.
MUrray Hill 7-8000

Pages 70, 71

MISCELLANEOUS RAW MATERIALS

(Agitating Balls for Paints and Powders)

Sterling Commercial Steel Ball Corp.
Box 401
Sterling, Ill.
MA 5-2750

Page 114

(Anhydrous Alcohol)

Commercial Solvents Corp.
260 Madison Avenue
New York 17, N. Y.
LExington 2-6420

U. S. Industrial Chemicals Co.
Division, National Distillers and Chemical Corp.
99 Park Avenue
New York 16, N. Y.
OXford 7-0700

Page 98

(Antibiotics)

Chemo Puro Manufacturing Co.
150 Doremus Avenue
Newark 5, N. J.

Page 90

Lederle Laboratories Division
American Cyanamid Co.
Pearl River, N. Y.

Eli Lilly & Co.
740 S. Alabama Street
Indianapolis 6, Ind.

Merck & Co.
Rahway, N. J.
RAhway 7-1200

S. B. Penick & Co.
50 Church Street
New York 8, N. Y.
CO 7-1970

Page 30

Chas. Pfizer & Co.
Chemical Sales Division
630 Flushing Avenue
Brooklyn 6, N. Y.
EVergreen 8-3800

Page 11

Wallerstein Co.
180 Madison Avenue
New York, N. Y.
LExington 2-8730

(Cycopol Resins for Paints)

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.
CIrcle 7-0100

Page 81

(Polyvinyl Pyrollidone and PVP/VA Copolymers)

Acetylene Chemicals Division
General Aniline & Film Corp.
435 Hudson Street
New York 14, N. Y.
WAtkins 4-0600

Page 15

Pharmaceuticals (antioxidants & bacteriostats)

Catalin Corporation of America
One Park Avenue
New York 16, N. Y.
MUrray Hill 3-2100

(Product Stabilizers)

Lewis-Harwood & Co. Inc.
320 Fulton Avenue
Hempstead, N. Y.

Page 114

(Snow Pellets)

Baltic Chemical Co.
115-119 Fourth Avenue
Brooklyn 17, N. Y.
NEvins 8-6401

Page 125

VALVES, AEROSOL (General Purpose)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Newman Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

Page 108

Precision Valve Corp .
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Pres-Pak Valve Corp.
7308 Brunswick
St. Louis 19, Mo.
STerling 1-0937

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

A. Schrader's Son
Div. Scovill Mfg. Co., Inc.
470 Vanderbilt Avenue
Brooklyn, N. Y.
NEvins 8-4000

Seaquist Manufacturing Corp.
First Street
Carey, Ill.
SPring 4-5100-Chicago

SAFCA (France)
7 Rue de Louvre
Paris, France
SAFCA (England)
Milbanke Way
Bracknell, Berkshire, England
(Other branches in Italy, Brazil, and Argentina)

Page 20

Valve Corporation of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (Foam)

Aerated Container Corp.
Dairy Whipt Division
39 So. LaSalle Street
Chicago, Ill.
CEntral 6-7460

Page 85

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Clayton Corp.
4205 Forest Park Boulevard
St. Louis 8, Mo.
OLive 3-2260

Page 116

LeMay Valve Co. Inc.
276 LeMay Ferry Road
St. Louis 23, Mo.
HUdson 1-3050

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

Page 108

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

Seaquist Manufacturing Corp.
First Street
Carey, Ill.
SPring 4-5100-Chicago

Super Whip Valve Co.
4101 N. Rockwell Street
Chicago 18, Ill.
JUniper 8-6300

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (Glass and Plastic Bottle)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Newman-Green, Inc.
501 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (Mechanical Break-Up)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Newman Green Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (Metered)

Dill Manufacturing Co.
700 East 82nd Street
Cleveland, O.
UTah 1-3200

Emson Research Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Hampton Products Co.
Hestor Street
Portland, Pa.
TWin Oaks 7-6103

Newman-Green, Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Risdon Manufacturing Co.
Box 520
Naugatuck, Conn.
PArk 9-8231

Valve Corp. of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (Paint)

Aerosol Research Co.
743 S. Circle Avenue
Forest Park, Ill.
FOrest 6-4880

Page 3

Emson Research, Inc.
22 Burr Court
Bridgeport, Conn.
EDison 6-2553

Pages 116, 125

Newman-Green Inc.
507 Interstate Road
Addison, Ill.
TErrace 2-1000

Page 23

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

Page 108

Precision Valve Corp.
700 Nepperhan Avenue
Yonkers 3, N. Y.
YOnkers 9-6500

Page 29

Risdon Manufacturing Co.
Naugatuck, Conn.
PArk 9-8231

Seaquist Manufacturing Corp.
First Street
Carey, Ill.
SPring 4-5100 (Chicago)

Sprayon Products Co.
2075 East 65th Street
Cleveland, O.

Valve Corporation of America
1720 Fairfield Avenue
Bridgeport, Conn.
EDison 3-3165

Page 14

VALVES, AEROSOL (One-Shot)

Oil Equipment Laboratories, Inc.
600 Pearl Street
Elizabeth, N. J.
ELizabeth 4-3900

Page 108

A. Schrader's Son
Div. Scovill Mgf. Co., Inc.
470 Vanderbilt Avenue
Brooklyn, N. Y.
NEvins 8-4000

VALVES, AEROSOL (Sealed-Until-Time-of-Use)

Dill Manufacturing Co.
700 East 82nd Street
Cleveland, O.
UTah 1-3200

VALVES, AEROSOL (Ultrafine Particle Size)

Aeroprojects, Inc.
310 East Rosedale Avenue
West Chester, Pa.
OWen 6-4710

EDITORIALS

The Aerosol Buyer's Guide . . .

Last year's Aerosol Buyer's Guide was admittedly undertaken with some misgivings, mainly because it was felt that the guide might contain errors and omissions. This year the same problem exists, but we feel that a year's preparatory work, together with some further consultation with aerosol authorities, have considerably reduced the chance of such errors and omissions.

Once again we have used all possible primary sources — suppliers bulletins, trade association listings, publications in related fields, and (where possible) have even checked our own subscription lists. And again this year we have had individuals from each of the major categories go over the lists to check for omissions.

In all the categories an attempt was made to list primarily the principal producers of suppliers of the material, equipment, component, or service. This has necessitated the omission of branch or district offices, sales representatives, agents, and other "secondary" sources—since listing of such firms or individuals would have made the guide both unwieldy and confusing to the casual user. Also, in such potentially large categories as "compressors" and "pumps," only those companies that were actually *known* to be active in the aerosol field were listed.

Having been this close to the final composition of the Buyer's Guide, we think it has revealed one striking fact about the last year of the aerosol industry's progress: This has been a period of considerable change. In all categories there were additions, entries, withdrawals, and marked changes brought about by corporate mergers, cessation of aerosol activity, stock sales, etc.

For instance, the valve supplier group lost one major supplier and another potential supplier who had earlier planned to enter the field this year, but picked up several new ones. The same thing happended with aluminum container suppliers, filling equipment, and several other of the minor categories. A number of small custom fillers fell by the wayside, but new fillers quickly sprang up to take their places. In all, it seemed a period of tremendous growth and maturing for those aerosol firms that survived. It might also be mentioned here that this year included the now quickly diminishing 1958 Recession, which although not as important a factor in the aerosol industry as in most others, may have been particularly important to small under-financed firms just starting out in a competitive market.

Added Cosmetic Controls . . .

Indications are mounting that the Food and Drug Administration, and the U. S. Congress, are contemplating increased controls for the cosmetic industry (page 59 of this issue). These controls will, if they are put into law or FDA regulation, cover mainly the policing of label and advertising claims, and could do certain segments of the industry some good.

However, the move to require cosmetic marketers to extensively test the raw materials used in their products may cause immediate hardship to the aerosol marketer (particularly ones with limited financial and research resources). Also, as is pointed out in the article mentioned above, it could mean added delays in the introduction of new aerosol products — a highly important factor in an industry as young and as energetic as the aerosol industry has become.

the Approach to Aerosols at Lederle Laboratories

AEROSOL experts seem to be almost universally agreed that some of the most exciting possibilities for major "breakthroughs" for pressurized products lie in pharmaceuticals; and that they will probably be made by some of the giant corporations in the pharmaceutical industry. Just how successful any particular product or packaging type will become is often determined by the degree of enthusiasm with which companies of the caliber and prestige of Pfizer, Lilly, Abbott, and Lederle accept the idea, convert it to their own product line, and then market it through their highly organized, well-subsidized advertising, promotional, and distribution agencies.

But despite the industry's spectacular successes with all types of aerosols over the course of the past ten years, why is it that until 1958 most of these major pharmaceutical companies introduced relatively few aerosols — and some none at all? Has it been over-caution or just a firm belief in necessary safeguards that have kept so many aerosol pharmaceuticals in the development stage for so long? Is the aerosol idea really accepted by top management of these firms?

To find the answer to these and similar questions *Aerosol Age* asked them of R. J. Hennessey, head of packaging development of the Lederle Laboratories Division of American Cyanamid Co., Pearl River, N. Y. During the past three years, Lederle has developed Rhulispray®, a topical spray for the prevention of irritation of insect bites, poison ivy, etc.; and Achromycin®, an antibiotic spray for topical use (photo above).

According to Mr. Hennessey, these products (and the others at various advanced stages of development) reflect solid belief in the aerosol idea by Cyanamid's management. "We believe that anything as truly functional as the aerosol is bound to be a success with the average housewife, who tends to like and even take pains to look for packages that operate with special ease or added convenience."

"In aerosol pharmaceutical packaging, the added cost of valve, container, and propellant—together with the custom filling cost—is not so important a factor as it may be in lower-priced consumer items. For instance, an item such as a liquid vitamin formulation, which may cost $3.50 in the conventional package, could probably be marketed for about $3.65 (or even less) in a pressurized package. For this the consumer receives more product, has the added convenience of the aerosol package, and the marketer has a new product that is priced to remain within easy competitive range of other similar products on the market.

"Because the pharmaceutical market is so competitive, an added cost of 10 to 15 cents (in the case of a more popularly priced item) could have the effect of driving it out of competition with similar conventional products. This factor may account for the reluctance on the part of some major pharmaceutical manufacturers to launch some of their lower-priced products in a pressure package."

Admitting that pharmaceutical manufacturers are by nature cautious about any new packaging method, Mr. Hennessey attributed the major share of this to the fact that nearly

all such manufacturers are selling a "prestige" product on which physicians (and the public) tend to judge their entire product line. Also, he pointed out, pharmaceutical manufacturers are working with products that assume tremendous importance to either the health or general well-being of the user, and any malfunction or otherwise poorly working product could cause considerably more ill-feeling (and possibly bodily harm) than a shaving cream, an insecticide, or a room deodorant.

Characteristic of this understandable caution at Lederle is the company's outlook toward nitrogen packaging. Extensive work with this propellant in a wide range of packages has been done by Lederle's packaging research staff, and several products are in advanced stages of development. However, what the company seems to be waiting for is perfection of a highly accurate nitrogen metered valve. Mr. Hennessey declared: "Consistency of delivery with a nitrogen metered valve will continue to be a major requirement. When a package is designed to deliver a metered application of .3 or .4 cc of a product, any variation defeats the whole purpose of the special package. It has been our experience that a number of existing metered valves work very well for products that are to be used four or five times a day. However, for those that are to be used less frequently (once a day or even less) as much as 40% variation in the amount delivered at a single actuation has been recorded. This variation occurs especially with heavy syrups and other liquids that tend to settle."

At Lederle the idea for any particular aerosol product usually is conceived in the research department or in the packaging development department (which, incidentally, keeps a wary eye on developments by Lederle's competitors). The fledgling aerosol idea is then considered by the company's new product development committee, which is made up of production, sales promotion, and technical administrative personnel. This committee is qualified to judge the idea from practical production, legal (patent), research, sales promotion, and other important corporate considerations.

From this committee the idea goes to the package development department, where various aerosol components are tested in various combinations to obtain the best possible package, and where long-range and accelerated stability and compatibility tests are conducted. Lloyd Hansen is aerosol project supervisor for this phase of development, which entails both selection of packaging components and stability tests and other chemical and physical tests to assure selection of the best components for the final package. This combined effort, according to Mr. Hennessey, insures that packaging research has control over packaging procurement, and at the same time prevents duplication of effort.

Once the product has been finally evolved (and has been approved by the legal department, sales promotion and advertising, purchasing, etc.) it is still not considered ready for final marketing until the packaging research staff has had an opportunity to put it through extensive tests. Each component is tested and re-tested for accelerated and long-term deterioration or malfunction. Standard drum, drop, and flame extension tests are part of routine practice. And finally, to test the ability of the finished package to stand up to rough handling, it is shipped to the company's farflung branches and returned unopened for inspection by the packaging development department.

So thorough is this long investigation that Lederle's first big consumer product, "Rhulispray", has been on the market for almost three years — and is still substantially the same as when it was first introduced. In fact, the only changes have been the addition of a six-ounce can (to go with the original three-ounce size) and the substitution of lithographing for the original paper label. Repeated tests

"Rhulispray's" early promotion included "cheesecake" photos like this one.

H. J. Hennessey Lloyd Hansen

have revealed no important bacterial growth, nor any spoilage.

The very rare malfunctioning package (which is returned to packaging development by way of a special product complaint department) is carefully checked to trace and eliminate the source of the malfunction. "Statistical quality control has not succeeded in wholly eliminating the human factor in aerosol packaging," Mr. Hennessey remarked.

Lederle works closely with its custom filler, Stalfort Pressure-Pak Corp., Baltimore, in the development of its aerosol products, and the arrangement seems to be a happy one. Through a carefully written contract, Lederle maintains selected personnel at the Stalfort plant during the time its products are being filled. One company representative is at the custom filling plant during the batching of the product concentrate. He works directly from a standard Lederle formula card, supervising the step-by-step blending of the ingredients.

During the actual filling operation, a Lederle production representative checks equipment for cleanliness, samples cans coming off the line for overfills and underfills, examines labels, container appearance, valve crimp, etc. In each step of the operation he works with Stalfort's own quality control personnel.

When the product has been filled and cartoned, Lederle control personnel take over; and again according to preset sampling techniques, spot-check containers for valve performance, appearance, physical consistency of product, pressure, etc.

"We feel that such a custom filling arrangement is ideal for a company with our aerosol requirements. Currently, our quantity isn't enough to warrant costly installation of a complete aerosol filling line, and having

(*Continued on Page* 118)

Sunscreens Discussed at N. Y. SCC Meeting

THE New York Chapter of the Society of Cosmetic Chemists opened its fall and winter series of monthly dinner meetings September 3 as a large audience heard Dr. Saul I. Kreps, technical director of Van Dyk and Co., present a discussion of the physical and chemical requirements of compounds useful for sunscreens in cosmetic preparations.

The function of a cosmetic sunscreen in a suntan preparation, Dr. Krebs said, is to absorb as completely as possible the sun's erythematogenic ultraviolet radiation while it transmits a maximum of all the other wavelengths of the sun's radiant energy. Such a preparation will effectively prevent painful sunburn and at the same time permit adequate tanning. Few chemicals come close to meeting this ideal situation but, he pointed out, it is possible to design useful compounds from a knowledge of the radiant energy required by certain chemical configurations in passing from one energy level to another and the efficiency of such transitions.

The erythematogenic or "burning" wavelengths of solar radiations extend from about 290 to 315 millimicrons. Dr. Krebs showed, by the use of Planck's Equation, that an effective sunscreen must contain a molecular configuration having a transition energy requirement between 91.4 and 99.4 kilogram calories per gram-mole in order for the chemical to exhibit maximum absorption in the "sunburning" range. Using graphic formulas, charts and tables to illustrate his talk, Dr. Krebs went on to give the wavelengths of maximum absorption for typical molecular configurations.

The quinoid structure is the most useful as the basis for developing a practical cosmetic sunscreen. Benzene has maximum absorption at 180 millimicrons and at 200 millimicrons — much too far in the ultraviolet, but substitution of an amino group for a hydrogen yield aniline with maximum absorption at 230 millimicrons. Introduction of a carboxylic group para to the amino shifts the absorption maximum further to 290 millimicrons—just within the erythematogenic band. However, p-aminobenzoic acid is not a useful sunscreen because its ionization impedes the formation of the quinoidal structure. When the acid is esterified, ionization is prevented and the ester becomes a practical cosmetic sunscreen. Glyceryl-p-aminobenzoate* exhibits maximum absorption at 297.5 millimicrons, which corresponds exactly to the erythematogenic maximum of sunlight and thus is one of the most useful of the commercially available cosmetic sunscreens. Increase in chemical stability and improvement in absorption selectivity has been obtained by modifying the amino group through condensation with an aldehyde group. The resulting Schiff base has maximum absorption within the erythematogenic range of radiant energy and the activated state is resistant to oxidation. Ethyl-p-glycosylimidobenzoate[1] is a recently developed commercial sunscreen of this type. To a greater extent than even the p-aminobenzoate esters, it absorbs selectively in the erythematogenic range and is nearly completely transparent in the higher tanning ultraviolet.

*Escalol 106, Van Dyk and Co.
[1] Escalol 206

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AHP Expands in Italy

American Home Products Corp., New York, has announced an expansion of its operations in Italy, to include a project for the manufacture and sale of drug products, cosmetics, and household products in that country. The company, through a subsidiary, Boyle-Midway Corp., is a major U. S. marketer of aerosol products.

The expansion was made possible through the granting of new contracts of convertibility and expropriation guarantees by the International Cooperation Administration. The new expansion will be guaranteed up to $440,000.

FDA, Congress Hint Controls on Cosmetic Advertising Claims Will Come Sometime in 1959

INDICATIONS are growing that the U. S. Food and Drug Administration and possibly even Congress will soon take active steps to curb extravagant ingredient label claims by the cosmetic industry. Following closely on the heels of a general warning to the June meeting of the Toilet Goods Association by George P. Larrick, Commissioner of Food and Drugs, *(Aerosol Age,* August, 1958) came these significant developments:

1. A warning published in *F-D-C Reports,* authoritative Washington reporting service for the drug and cosmetic industries, that the FDA has launched a check-up on label claims and that "every major manufacturer in the industry" will probably be called on the carpet over a period of months!

2. A promise by Rep. Sullivan (D., Mo.) that she will introduce legislation dealing with the safety of materials and chemicals used in cosmetics during the next Congressional session. As a prime source for her contention that cosmetics may be a hazard to their users, she read into the *Congressional Record* a series of articles on hair sprays that appeared in St. Louis newspapers.

3. A warning by Dr. Frederick J. Cullen, medical consultant to The Propriety Association, that advertisers of over-the-counter drug items face added governmental controls unless they use considerably more discretion in advertising and label claims.

4. A recommendation by Rep. John A. Blatnik (D., Minn.) that Congress strip the Federal Trade Commission of its authority to police advertising by toothpaste manufacturers and others and turn the entire job over to the FDA. Rep. Blatnik's committee recently concluded hearings on claims that toothpaste manufacturers have been getting away with "deceptive" advertising claims for their products.

5. Indications from the FTC that it is studying the possibility of setting up a series of advertising guides for the dentrifice marketers which would set forth exactly what type of claims the Commission believes transgress the law.

6. Acknowledgement by the FDA that it has undertaken a new study on the long-term effects of hair sprays. This study was prompted by the now well-known article in the March *New England Medical Journal* by three St. Louis doctors *(Aerosol Age,* May, 1958) and Rep. Sullivan's remarks before the House.

7. Passage by the 85th Congress of a food chemical additives bill that could provide the pattern for a similar bill to cover cosmetics ingredients. The new food bill requires pre-marketing testing of chemicals added to foods and also changes the FDA's concept of regulating food additives under which any poisonous substances were deemed unsuitable for food use. The FDA is now permitted to set tolerances for use in food of substances which may be poisonous when ingested in large quantities.

PROBABLY the most significant of these, however has been the story in *F-D-C Reports,* which was later quoted in a special bulletin issued by the Toilet Goods Association. Some excerpts from the story follows:

"FDA's cosmetics drive, a long-range affair, is aimed at an eventual 'clean up' (on an industry-wide basis) in order to eliminate much of the fierce competitive claims which have spawned what the FDA considers 'wild' labeling. . . . After years of inactivity on cosmetic claims, FDA is 'going after' the products it considers the worst offenders. Sometimes labeling revisions are sought via the informal 'citation' procedure. Sometimes a product is seized. Once the manufacturer is in conference with FDA, he is likely to hear a whole list of grievances. In this way, the FDA hopes to get maximum labeling compliance with a minimum of legal actions.

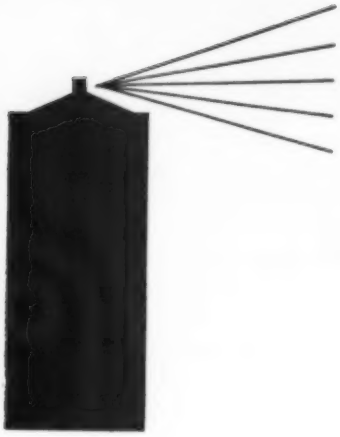
The *F-D-C Reports'* story quotes remarks by Rep. Sullivan before the House just prior to its adjournment:

> " 'I now serve notice, Mr. Speaker, that I intend to do everything I can beginning at the start of the next session of Congress to enact similar legislation dealing with the safety of materials and chemicals used in cosmetics.
>
> " 'I hope that it does not take as long as it has taken to get action on the food additives. The problem is much the same and the solution also is much the same—that is, legislation to require the manufacturer to prove the safety of the chemicals they use rather than to force the Government to prove the chemicals to be unsafe! '

"Despite the lady from Missouri, however, amendment of FDA's coal tar color law may get priority over new cosmetic legislation in the next session since both industry and government have agreed in principle on the need for abolishing the *per se* harmless concept for a system of tolerances. FDA and industry are still far apart on the regulatory details. TGA officials are understood to believe that it is highly probable that Congress may consider both color and cosmetic legislation next session.

". . . FDA Commissioner Larrick

(*Continued on Page* 121)



Insect Repellents..

Will 1959 Be the "Big" Year?

IN the opinion of many highly-respected aerosol experts, ranging all the way from research personnel of the USDA to the sales managers of some of the major marketers of household, pest control and garden products, one of the most promising products for development as an aerosol is insect repellents. They point out that the aerosol offers the perfect medium for dispensing liquids that must be evenly distributed over surfaces of the body or clothing, and that most of the excellent insect repellents developed in recent years are perfectly compatible with aerosol package components.

But despite these factors (and in spite of a number of highly effective new insect repellents), aerosol insect repellents did *not* live up to expectations in 1958. Lack of any concerted effort to educate the general public on the advantages of insect repellents, coupled with a somewhat cautious approach to national advertising by nearly every marketer but S. C. Johnson, appears to have seriously curtailed any substantial sales volume rise for at least this year. Members of the editorial staff of AEROSOL AGE, conducting a straw survey of drug and hardware stores in Northern New Jersey, were able to buy aerosol repellents in a surprisingly small percentage of the stores surveyed. And in nearly every store where there *were* aerosol repellents on display, the clerk or druggist had no knowledge of whether or not they contained diethyl toluamide, 6-12, "Tabatrex" * or any other special repellent material.

The development of diethyl toluamide by the USDA has been the most exciting single event in the repellent field. It has been called by the USDA "the best all-purpose insect repellent so far developed," and, deservedly, has received more free publicity in the technical and trade press than any development since DDT. The fact that it was selected from over 9000 repellent compounds over a 16-year period is now fairly common knowledge throughout the industry. However, this important information apparently still hasn't filtered down to the consumer to make him ask specifically for products containing the material. So far as could be determined by an examination of consumer periodicals, there hasn't been a concentrated publicity effort on the part of any one marketer to show the consumer that diethyl toluamide or any of the other excellent compounds are more effective or less attractive to humans than, say, oil of citronella.

•

DIETHYL toluamide is currently being manufactured in three isomeric forms by some of the major insecticide manufacturers in the country. These include Cowles Chemical Co., Cleveland; R. W. Greeff & Co., New York; and Hercules Powder Co., Wilmington. Of these the meta isomer is by far the most important to the aerosol formulator, since it remains a liquid at room temperature while the ortho and para isomers are solid. The commercial material for aerosol formulation is usually 85 to 95% meta isomer, with the remaining percentage either para or ortho. H. F. Pierce, of Hercules Powder Co.,** reports that the reason for this is that pure meta is more effective against biting insects than either pure ortho or pure para. "The ortho isomer appears to be somewhat more effective than para, but it tends to be removed more easily from the skin by wiping action. All three isomers, then, are insect repellents, with meta being the most outstanding. It should be noted however, that the USDA has found diethyl toluamide, containing 70% meta isomer, to be just as effective as diethyl toluamide with a 95% meta content, as long as the remainder of the material was composed entirely of either or both of the other two isomers."

Mr. Pierce further points out that manufacturers have been offering both the 85% and the 95% meta product, but that the 85% has accounted for most of the market because it is less expensive and has shown itself to be just as effective.

From a chemical and an application standpoint diethyl toluamide is perfectly suited for aerosol formulation. When applied from an aerosol

* Glenn Chemical last month changed the name from "Tabutrex" to "Tabatrex."

** "The Use of Diethyl Toluamide Insect Repellent in Aerosols", by H. F. Pierce, Agricultural Chemicals Division, Hercules Powder Co., Wilmington, Del. Presented to the 45th mid-year meeting of the CSMA, May 20, 1958.

containing alcohol, the initial film is scarcely noticeable, dries immediately, and will repel insects for several hours. The basic material has a characteristic mild odor that allows the use of a wide range of perfumes. Also, as Mr. Pierce points out in his paper, an added advantage is the ease of treating clothing with aerosols and the ability to apply the right amount without wasting or spilling any. "In order to prevent attacks from ticks or chiggers, the camper or sportsman need only direct the aerosol spray on his boots, stockings, pants cuffs, and other openings in his clothing."

The standard aerosol formulation contains 15% diethyl toluamide, and most aerosol marketers are using that percentage in presently constituted packages. Of the rest of the formulation, at least 15% (or sometimes slightly more) is usually denatured absolute ethanol, and the remainder consists of the conventional fluorinated hydrocarbon propellants. On this Mr. Pierce says:

"Propellant 12 and combinations of 11 and 12 have been used in diethyl toluamide aerosol formulation, but it is believed that straight propellant 12 is employed most frequently and will probably be specified in U. S. Government specifications. Methyl chloride is undesirable because of its tendency to release hydrochloric acid. Acid formation should be avoided or corrosion difficulties may be encountered inside the aerosol container. In this respect the acid number of the commercial diethyl toluamide itself should be kept below 0.15.

". . . Since diethyl toluamide is somewhat hygroscopic, an effort should be made by the formulator not to allow the material to be exposed to the air for long periods. One pound tin-plated steel is believed to be superior to the lighter tin coatings or to other synthetic coatings insofar as corrosion inhibition is concerned."

Probably the biggest single drawback to promiscuous use of diethyl toluamide as an aerosol by the individual consumer is the plasticizing action of the repellent. When spilled or sprayed on watch crystals, eyeglasses, bathing caps, and other plastic materials, it will often produce a permanent clouding effect. Though this factor has not hitherto been an important factor in sales of repellents containing DET, it could be if the market is developed to anywhere near its potential.

Another major producer of repellants, McLaughlin Gormley King Co., Minneapolis, has successfully reduced the diethyl toluamide percentage in its formulation through substitution of its own repellent compounds. This has had the double advantage of reducing the plasticizing effect and also lowering the cost of the formulation.

McLaughlin Gormley King's research staff has developed an aerosol formulation with the following ingredients:

ACTIVE INGREDIENTS:	
Diethyl toluamide (90% meta)	2.00%
MGK 264 (N-octyl bicycloheptene dicarboxide	2.00
MGK 11 (2,34,5-Bis ($\triangle_2$-butylene) tetrahydrofurfural	.50
R-326 (Di-n-propyl isocinchomeronate)	.50
	5.00%
INERT INGREDIENTS:	
Anhydrous isopropanol	35.00%
Propellant	60.00
	95.00%

The ingredient R-326 warrants special mention here. This material is a sunscreen material (developed by Van Dyk & Co.), which has the double function of synergism and as a sunscreen to preserve the repellent properties of MGK 326 and 11.

This less expensive 5% formulation has one added advantage not mentioned above. The lower percentage required for the repellency characteristic permits the formulator a far greater versatility than does the 15% formulation. For instance, the repellent can be combined with a sunscreen or an insecticide to permit the product to do double duty. In fact, according to Paul Torpin, of MGK, this combination of a sunscreen with the insect repellent may serve to insure that the user gets good coverage with the repellent, since "there is a natural tendency to apply suntan lotions and sprays in liberal amounts."

Also, when combined with an insecticide, this MGK formulation could have an important bearing on bringing increased usage of insect repellents by farmers. Jerry Froot, also of MGK, points out that "Farmers *want* to see flies die. They are not usually content with a repellent

(*Continued on Page* 111)

Among the commercial formulations based on Hercules' meta Delphene (DET) are "Off" (S. C. Johnson & Sons); "Die-Tol" (Phillips Fly & Tackle Co., Alexandria, Pa.); "7-11 Aerosol" (Silicote Corp., Oshkosh, Wisc.); "Jetco" (Jewel Tea Co.); "Sprayrite" (Virginia Smelting Co.); "DuPont Insect Repellent", "Mosquitone (McKesson & Robbins); "Black Flag" (Boyle-Midway); and Watkins Mosquito Repellent (J. R. Watkins & Co., Winona, Minn.)

Parfum Mist, a product of Parfums Ciro, New York, was introduced last month in a Risdon brushed gold metal case with a stainless steel inner case holding 250 metered perfume applications. It will retail for $4, with different colored boxes for the six Ciro scents. Refill cartridge will be available by January.

Hammer Finish Spray Paint is a new product of Plasti-Kote, Inc., Cleveland. It is being packaged in 16-ounce cans with cover caps matching the color of the paint. Product, which will retail for $1.89, is available in silver, gray, green, blue and copper. It dries within about 30 minutes of spraying.

Nu-Glu White Glue is believed to be the first aerosol glue product ever developed. Utilizing a Precision valve and nitrogen as the propellant, it will retail for 98 cents. Glue is being marketed nationally by Flamemaster Chemical Co., 3813 Hoke Ave., Culver City, Calif.

Three new European products are **Ambra Solare** (made by L'Oreal, Turin, Italy), **Crystal Nail Dry** (A. H. Riise, Copenhagen, Denmark, and **Nox Aeg Shampoo** (Also A. H. Riise). Valves for all three packages are by Solfrene S.R.L., Milan, Risdon licensee in Italy.

Crown Glass Frosting is a new product of Crown Industrial Products Co., Woodstock, Ill., specifically designed to reduce sun glare without color distortion. A fine mist spray valve eliminates runs and speeds drying time.

Vi-Daylin, introduced last month by Abbott Laboratories, N. Chicago, Ill., is the first nationally-marketed aerosol vitamin package. Powered by nitrogen and utilizing a Precision valve, it is designed to be attractive enough for kitchen, counter, or table. No refrigeration is recommended. Lemon flavored product was introduced nationally on Sept. 2 after test marketing in San Francisco, Memphis, Baltimore, and St. Louis.

Porto Blast is another aerosol horn for sportsmen, drivers of automobiles, truckers, etc. Packaged and sold by Kerr Chemicals Inc., Park Ridge, Ill. it will retail for $10 complete, with 15-ounce refills at $1.79.

Rug-Sta is a new product of the Boyle Midway Division of American Home Products. Retailing at $1.59, it is designed to prevent skidding by rugs, and is sprayed on the rug backing or base of any other article which needs stabilizing. Can holds 10-ounces.

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A general view of the Safca Congress includes (left to right): Messrs. Eschemann, Remane, R. Pollet, Noyre, M. Pollet and Verley (all of SAFCA France); Messrs. Gualandris, Jaccarino, and Rossi (Safca Italy); M. Baud (Rhone Polenc); and Wan Germee (Safca Argentina).

SAFCA Aerosol Group Holds Annual Congress

A Staff Article
Prepared with the Cooperation of
M. N. Conville
Managing Director
Safca, England

PROBABLY the most unique (and one of the least understood) aerosol organizations in the world is the Safca group of companies, which concluded its second annual conference at Lyons, France in July. People in the aerosol industry here and overseas are not quite sure whether the group should be more properly thought of as a trust, a cartel, or some other closely-knit corporate alliance. Actually, it is none of these.

Over the past ten years, under the direction of M. Rene Pollet, president of Safca France, separate companies have been established in France, England, Italy, Brazil, and Argentina. Oddly enough, these firms have no financial connections with each other, and the capital and management of each is supplied by individuals in the country in which it is located. Safca France, which is more or less the parent company, dictates no overall policy for group expansion and lays down no rules. However, Safca France does insist that all companies collaborate as closely as possible on technical problems presented by the expansion of the aerosol industry, that they help develop new ideas and products, and that all contribute to the development of the Safca valve.

Actually, the organization of the Safca group has been stimulated by the aerosol situation in Europe. In the U. S., from the very beginnings of the aerosol industry, there have been separate laboratories, custom fillers, and independent laboratories. In Europe Safca was able to establish itself by merging all these functions into a single company, and each of the Safca companies has a filling organization, a valve organization, plus a coordinated laboratory to serve both. It is thought by the management of the various Safca companies that this type of arrangement gives a good deal of versatility to each, and enables them to keep their fingers on the pulse of the whole industry rather than on any one particular phase of it. Also, this arrangement has allowed the Safca group to move quickly when it was necessary; and, what is possibly more important, a development in one operation has often led to an allied development elsewhere in the same company.

After Safca France the first associate company formed was in England in 1954, followed by Safca Italy, then Brazil, and finally, Argentina. Safca England is part of the Thomas Tilling group of companies, one of the largest industrial holding companies in English commerce and a group with wide and far reaching interests. Safca Italy, Milan, was founded in association with a long-established insecticide firm. Safca Brazil is connected with Rhodia Quimica Brasileira, which in turn is a subsidiary of Rhone Poulenc,

TO AEROSOL MARKETERS... ***Present and Prospective...***

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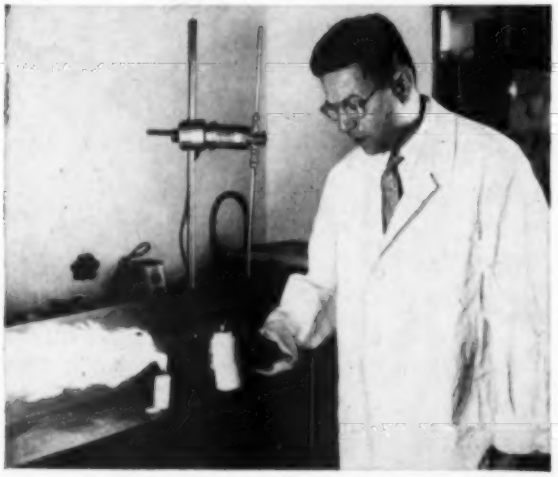
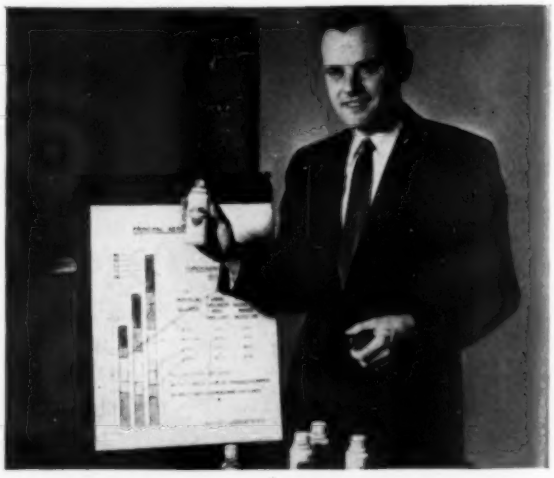


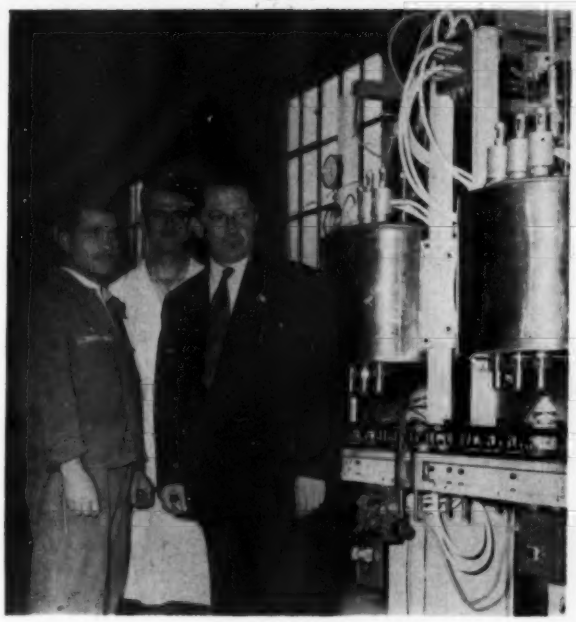
Expert Technical Service, Formulation Assistance. General Chemical has one of America's finest aerosol laboratories—completely equipped for testing and development work. Its services have guided many aerosol marketers in their development programs and are readily available to you. With General Chemical's help you may be able to save time and money in arriving at a compatible aerosol formulation of your product for evaluation and final testing by your own research and marketing experts.



Market Data. General Chemical has prepared a fact-packed marketing and sales presentation to help you in a preliminary survey of the aerosol field and in planning your marketing program. It includes sales projections for aerosol and non-aerosol segments of many markets, prepared by our Market Surveys Department, as well as a host of other helpful facts and figures. To arrange for a special presentation, simply call or write General Chemical's "Genetron" Department.

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

one of the largest chemical manufacturers in Europe. Safca Argentina is under the wing of a very old French company which has been trading in Argentina and other South American countries for many years. As the various companies were formed, an attempt was made to select key personnel who gave evidence of being especially cooperative and friendly, so that ideas could be freely exchanged.



M. Remane, chief designer for Safca France (right) inspects a new filling line with two associates. M. Remane designed the line himself.

IT was to facilitate this exchange that M. Pollet suggested an experimental "Congress" of all these companies in 1957. This meeting was a success and representatives of all five companies assembled in Lyon this July for another Congress, at which the heads of each company studied particular filling problems, research projects, and development of the Safca valve.

The 1958 Congress had a pre-arranged program, and much was apparently accomplished. A fixed plan for the interchange of laboratory information was agreed to, and the filling engineers from each company exchanged a number of technical ideas to improve filling techniques. For the first time in 1958 representatives of other leading European fillers were invited. These included H. W. Holm of Aerosol Fylling, Norway and Denmark; F. Schumtz, Aerosol Service AG, Switzerland and Germany; and Mr. Lis, European director of Cooper, McDougall and Robertson, whose subsidiary, PAFCO, is a major English contract filler. According to M. N. Conville, managing director of Safca England, "In the coming years it is the intention to increase the scope of this invitation to anybody who would like to see what Safca is doing in the filling field, in the laboratory, and what the Safca valve can do now and in the future."

During the course of the 1958 meeting, M. Baud of Rhone Poulenc disclosed that his company had what was undoubtedly the first patent on an aerosol-type package, and that this early patent was filed in 1898. This early model was a small glass canister sealed under pressure with an outlet valve and was intended primarily for pharmacutical use. M. Baud said Rhone Poulenc was very glad to be back in the aerosol field after 50 years.

Each year each company's laboratory is asked to investigate some special problem or packaging technique. For the 1958 meeting Safca England was asked to experiment with the Safca valve for nitrogen filling, and A. Simpson, development chemist at the Safca England laboratories, gave a paper on the subject. It was his conclusion that the basic patented design of the Safca valve lends itself efficiently and easily to nitrogen filling.

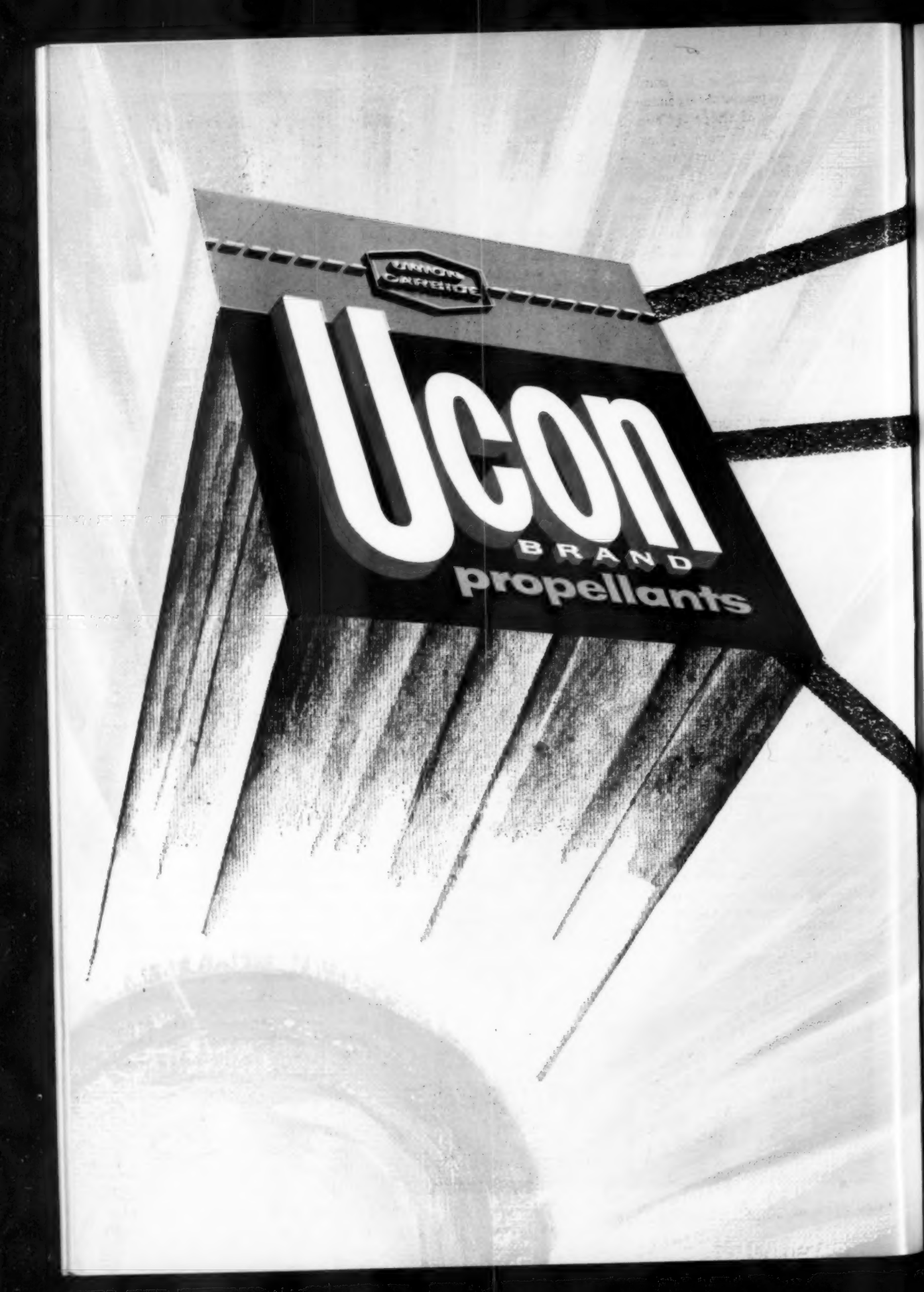
At the July Congress all the delegates expressed considerable confidence in the aerosol industry, and in the information exchange arrangements of the Safca group. Mr. Conville declared: "We are proud of the fact that from humble beginnings our valve and techniques are becoming so well known across the world, and we believe that as the aerosol industry grows throughout the world, we will grow with it.★

The Safca (England) delegation included M. N. Conville, managing director; Messrs. Remane and Noyre; Mr. Hyland, material controller; M. Pollet; Mr. Simpson, chief development chemist; and Mr. Hudson, sales director.

Pacent to Revlon Post

Revlon, Inc., New York, has announced the appointment of Louis G. Pacent as vice-president for manufacturing. He will direct all manufacturing, shipping and West Coast warehousing operations.

Mr. Pacent was formerly vice-president for manufacturing of the Emerson Radio and Phonograph Corp.


UNION CARBIDE
Ucon
BRAND
propellants

Above: Solid carbon dioxide compared with the conventional product. Both pieces are about one-half inch thick. Right: Loading process. The glass bottles at right are filled with product. Center, a tray of ice pellets which are placed in the bottles with tweezers before the valve is set in place. At left, fully loaded containers ready for valve crimping.

Dry Ice as an Aerosol Propellant

By Dr. L. W. Haase
Berlin, Germany

SOLID carbon dioxide, usually called "dry ice", has had widespread commercial use for many years. It has a specific gravity of slightly more than 1.5, and is white and non-transparent in appearance. Despite its relatively high specific gravity and the high pressure required for its manufacture, it has a non-uniform, non-homogeneous internal structure, principally because it is made from a compressed gas.

As a result of these characteristics, particularly the irregular internal granular structure, commercial dry ice gasifies with a great deal of turbulence and speed when it comes into contact with other liquids. And because of this erratic internal structure, if one endeavors to use dry ice (in equally measured pieces) for the generation of CO_2, each piece will give off a different amount of gas. In addition, unless special protective measures are taken, over-pressure in the container could conceivably be great enough to burst it. This last possibility stems from the fact that the gasification rate so greatly exceeds the absorption rate of the liquid.

In order to use dry ice as a propellant in pressure packages, these physical disadvantages must first be overcome. One likely alternative is to employ a newly-developed process in which the dry ice is altered so that it becomes transparent, while still preserving nearly all of the other desirable physical characteristics (of commercial dry ice). Photo 1 shows a piece of commercial dry ice and the newly-developed transparent ice, each piece being about one-half inch thick.

Possibly a word of caution should be introduced at this point, especially should anyone attempt to repeat the experiments described here, either by loading aerosol containers with CO_2 gas or with pieces of conventional dry ice. Due to the excessive pressures which will be created in the head space and the slow CO_2 absorption rate of the product, the results could be disastrous. By reason of its changed properties and characteristics, however, this new dry ice eliminates these hazards, which are considerable for conventional dry ice and CO_2 gas.

Without too great a loss of pressure, this new dry ice completely discharges liquids from closed containers. Its gasification rate in free atmosphere and in contact with other liquids is so radically reduced that its use in either medium may be undertaken with safety. And for most products used in pressure packages, the CO_2 absorption rate is in line with the gasification rate of transparent ice. In a closed container this results in a slowly rising pressure until a predetermined, desired pressure is reached—a pressure that has been calculated directly according to the dimensions of the transparent ice pellet used. Experience has shown that pieces of various sizes will consistently yield certain internal pressures, and that these pressures will, in normal cases, not deviate by more than 10%. In rare cases, with special

Photo 2: Uncoated bottles with the corresponding ice pellets required for gasification.

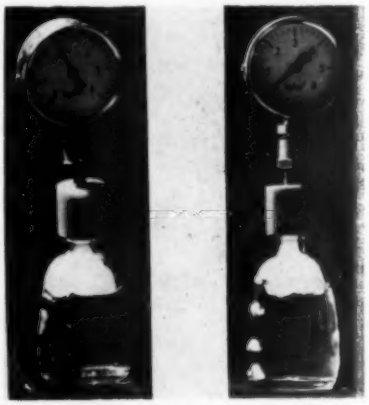
products, deviations of 20% have been recorded.

CONVENTIONAL dry ice, depending upon its density, has a specific gravity ranging from 1.5 to 1.6, which makes it considerably heavier than water and many other liquids. However, despite this, when placed in water it will remain on the surface and will not sink to the bottom. This can be attributed to its turbulence in breaking down, and to its very rapid rate of gasification. The transparent ice, on the other hand, has new and different characteristics in these media. It has an unvarying specific gravity of 1.4, which, coupled with a drastically reduced sublimation rate, causes it to sink immediately to the bottom of the vessel. Here it lies inert, gasifying at a slow rate—the gas escaping and rising through the liquid and being absorbed by it. When gasification is complete, head space pressure is no more than that originally calculated. Head space pressure is directly related to the volume of the product filled, increasing as the volume of the product decreases. It varies for different products depending directly on their CO_2 absorption rates and capacities.

Since no particular physical problems arise in the working or forming of this new transparent ice, it can be prepared in pieces of equal dimensions and in all shapes. In passing we should mention that exacting specifications and conditions must be adhered to in converting the conventional dry ice to transparent ice; but the process, once installed, is not particularly expensive.

It is relatively simple to calculate or establish experimentally the dimensions of the transparent ice pellets necessary to produce the desired internal pressures for the different product types and different size containers. Photos 2 and 3 show such pellets in the sizes required for bottles with from 50 to 100 ml. content and for metal cans from 2½ to 18 ounces (assuming an 85% product fill and a pressure of not over four atmospheres). With pieces of the new transparent ice in predetermined sizes, pressure is adequate to completely discharge all product from the container.

As may be expected, this new transparent ice considerably simplifies the loading operation. The containers do not need to be pre-cooled and, as is shown in illustration 1A, propellant loading and valve placement are quickly and easily accomplished. Thereafter, the valve is clinched by the conventional method. Illustrations 5 and 6 show glass bottles (filled to 85% with a 70% eau de cologne concentrate) at the start and finish of the gasification process. The mist in the gaseous phase (which disappears) arises from water condensate generated by the low temperature of the transparent ice. The pre-determined pressure, according



Photos 5 and 6: Left: pressure build-up from transparent solid Co_2. Right: immediately before the end of gas discharge and maximum pressure point.

to the size of the transparent ice pellet used, is reached in from 60 to 120 seconds after the valve is capped. The pressure drop between the original starting pressure and that found in the container immediately prior to complete product discharge is about ¼ atmosphere or 4 p.s.i.

After the valve is clinched or rolled on, the necessary pre-calculated internal pressure for the complete discharge of the product is formed inside the container itself. As observed above, this pressure remains practically constant until all the product is discharged. Dependent on product and valve and spray head employed, the pressure produces a mist, stream, paste, or foam (Photos 7 to 9).

THE slow gasification rate achieved through this manufacturing process allows not only the free use of this transparent ice at the loading station, but also its transport and

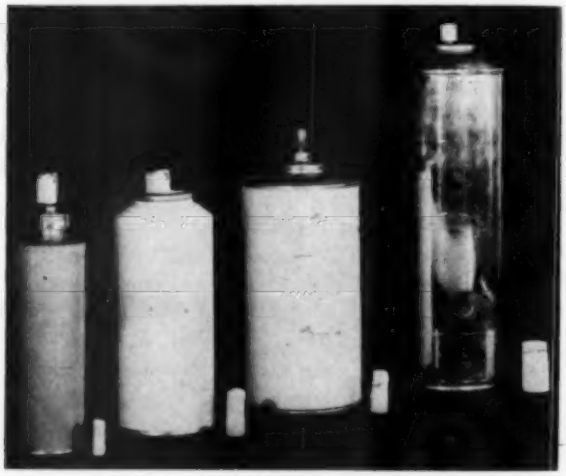


Photo 3: Metal containers of different sizes with the sizes of ice pellets required to pressurize each.

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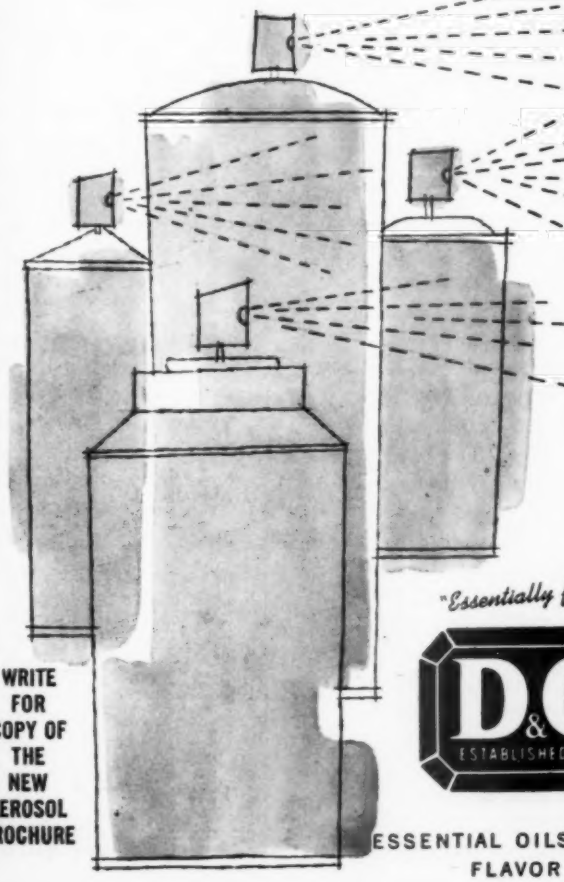

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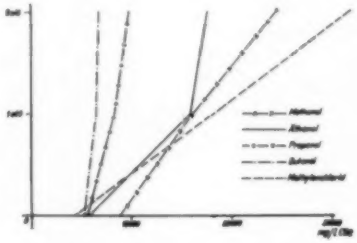
Photos 7-9. Performance of various products. From left: Discharge of cream as whipped cream (Precision valve). Spray pattern of a hair spray (Risdon "Micro Mist" spray head). Insecticide surface spray (Safca-France valve).

storage over protracted periods of time in conventional insulated containers. This storage and transport can be accomplished regardless of temperature variations and without substantial loss. Tests have shown that one gram of the transparent dry ice will gasify in about eight hours (in free atmosphere at room temperature), while only about ten or 12 minutes is required for the same weight of conventional dry ice. Since even with the best insulation there is some gasification, this can be compensated for in the dimension of the pellet and an approximation of the time lapse between manufacture and ultimate use in the pressurized package.

The transparent ice propellant does not require any particular or special valve type, but a mechanical break-up mechanism should be used for fine sprays. As with other product types, and more conventional propellants, it becomes a matter for the valve manufacturer and the product formulator, working closely together, to evolve the proper valve type.

Since the new propellant displaces no space in the container, the product may be filled to 85 or 90% of the total content. Despite the relatively small area remaining for head space, with normal discharge the internal pressure remains practically constant until all contents are discharged. In fact, the pressure is sufficient to discharge the entire product in one uninterrupted valve activation without pausing for any regeneration. This is due to the fact that the pressure in the gaseous phase remains in practically constant equilibrium with that in the liquid or product phase, which is built up by the absorbed CO_2. The amount thus absorbed is many times that in the gaseous phase and it thus acts as a reservoir to regenerate the gaseous phase as the active product is discharged.



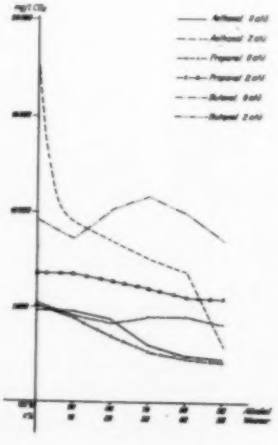
10. Absorption rate of carbon dioxide in aliphatic alcohols and methylene chloride at different pressures.

A simple example should demonstrate this relationship. In a 100 ml. bottle we have 85 ml. of fluid product and 15 ml. of head space. At 2 atmospheres (about 30 psi) this head space corresponds with a weight of $15 \times 2 \times 2 = 60$ mg. of CO_2. Assuming an alcohol-water mixture, this mixture will absorb, per liter, about 12,000 mg. of CO_2. Therefore 85 ml. of the liquid product will absorb 1020 mg. of CO_2; that is, more than 15 times the amount in the head space on original filling. At a pressure of 2 atmospheres, in order to hold a constant pressure in the head space, even on constant discharge, it is only necessary that 150 ml. of CO_2 be regenerated from the product phase — a quantity very rapidly made up without any important loss of over-pressure.

Even with substantial outside temperature variations (such as may occur in transport or storage) the over-pressure in the head space changes very little. As with all such compressed gases, the volume addition is about 0.3% for each degree Centigrade temperature rise. With an increase in temperature of 80°C. (an extreme case not likely to be encountered under normal conditions) the gas volume increase would amount to only 24%. This would correspond roughly to a pressure increase of 0.3 atmospheres (about 5 psi). In practice, this means that inasmuch as the active product itself does not gasify (as would be the case with liquid propellants and other liquids of low boiling points) the containers pressurized with transparent CO_2 are relatively independent of temperature variations; and that

(*Continued on Page* 115)

11. Absorption rates of different alcohol-water mixtures at different pressures.



This is the fourth in a bi-monthly series on pressurized packaging in Great Britain and Eire.

Aerosols in Great Britain

By A. Herzka, B.Sc., A.R.I.C.
Research Department
The Metal Box Co., Ltd.
London, W.3.

THE number of patents, pertaining to aerosol products, which have been granted in this country are not as numerous as those granted in the United States of America. The majority of the British patents are concerned with valves and containers, as illustrated by Brit. Pat. No. 789,347 published Jan. 22, 1958. Its title is "Glass Aerosol Containers and Method of Making Same", and the inventor is Joseph Francis West, of Millville, N. J. Amongst the claims by the patentee are the following:

1. A glass container adapted to contain aerosol compositions comprising a product to be dispensed pressurized by a propellant for said product, said container comprising a main body portion substantially the entire exterior surface of which is sheathed in a reinforcing sheathing possessing elastic or resilient qualities and of sufficient tensile and tear strength to prevent its destruction upon explosion of the glass container, said sheathing being itelf provided with one or more perforations to allow venting thereof in the event of breakage of the container body.

3. A glass container wherein the sheathing comprises a plastic material which is in non-bonded relation with the container body.

According to claims 4. and 5. the sheathing may be made from vinyl chloride resin or cured vinyl chloride resin plastisol.

8. A glass container as in any of the claims wherein the sheathing is between 1/64-inch and 1/32-inch thick.

Apart from what might well be termed "structural" patents there are at least seven "functional" products, dealing with formulations. Three of these patents were granted to the Zonite Products Corp., New York, and two of them deal with three-phase formulations.

Brit. Pat. No. 717,460 was published Oct. 27, 1954 and is entitled "Dispensing Liquids by Gaseous Pressure."

Brief Summary of Claims: A dispensing device containing

1. a liquid medium to be dispensed,
2. a liquid propellant of greater specific gravity than and substantially immiscible with the liquid medium,
3. promotors of vaporization (porous pot, glass chips, etc.), and
4. propellant vapour, above the liquid medium.

The boiling point of the propellant does not exceed 20°C and the claims mention only chlorinated and/or fluorinated hydrocarbons having from one to two carbon atoms per molecule.

Brit. Pat. No. 732,692. Complete specification published: 29th June 1955. Title: "Device for Dispensing Liquids by Gaseous Pressure."

Brief Summary of claims: A dispensing device containing

1. a liquid medium to be dispensed,
2. a liquid propellant of greater specific gravity than and substantially immiscible with the liquid medium, and
3. propellant vapor, above the liquid medium.

The boiling point of the propellant does not exceed 20°C and the claims mention only chlorinated and/or fluorinated hydrocarbons having from one to two carbon atom per molecule.

The third Zonite patent No. 762,405 deals with what is usually referred to in the U. S. as "ultra" low pressure packs. Its title is: "Liquid Compositions Capable of Being Atomized at Normal Room Temperature", and the specification was published Nov. 28, 1956.

Brief Summary of claims: A liquid mixture having a pressure lower than 25 p.s.i.g. at 70°F, comprising

1. 10-35% by volume of propellant (Freon type and/or butane),
2. an alcoholic vehicle comprising one or more saturated aliphatic monohydric alcohols, containing not more than three carbon atoms, and
3. an alcohol soluble ingredient, e.g. a perfume.

The minimum concentration of the various alcohols is also specified, e.g. Isopropanol at least 75% by volume; ethanol at least 85% by volume; methanol at least 90% by volume.

There are two patents dealing with foam products. The earlier of the two, 719,647 which was granted to Colgate-Palmolive-Peet Co., N. Y. refers specifically to shaving creams. The complete specification was published Dec.

(*Continued on Page* 120)

Consultant's Corner

by Robert A. Foresman, Jr.
Aerosol Consultant
Philadelphia, Pa.

Corrosion in Metal Aerosol Containers

THERE is certainly nothing new or unusual about a discussion of corrosion of metal aerosol containers, and it would seem that any such discourse would be repetitious. However, the question comes up regularly and for those new to either the aerosol industry or to the specific problem some thoughts on the subject may not be amiss.

Although the shelf life of any particular product depends on several factors, the most important consideration for products in metal containers is the possible reaction between the contents and the container. This reaction can take the form of gross surface corrosion, pinpoint perforative corrosion, detinning, or solder dissolution, on the part of the container; and discoloration, development of off colors, precipitation, and change in pH, on the part of the contents. In addition, when true corrosion occurs there may be evolution of hydrogen gas which can raise the pressure of the container to the bursting point.

Usually the first reaction to the word "corrosion" is that the problem can be solved by coating the interior of the can with a lacquer or plastic film. This, of course, is a logical approach, but it should be pointed out that a very great number of the packages concerned *are* interior-coated, and that corrosion may still occur *in spite of* the coating.

I think it is safe to say that as a rule an interior coating on a metal container may protect its contents, but will never actually protect the container. The reason for this is that it is virtually impossible to apply a coating in a perfectly unbroken film; and since breaks must be expected it follows that corrosive activity *will* take place, if only at the breaks in the film. The areas involved in these film breaks will not result in great quantities of metal ions being released to the contents, but since the corrosion is limited to a small area, there is a tendency for the corrosion to penetrate deeply in order to satisfy the demands of the corrosive agent.

The actual mechanism of corrosion varies, just as does its source. It may originate in an inherently corrosive fraction of the content formula, from interaction among the various ingredients of the active material, or from hydrolysis of the propellant, which in turn releases free acid.

While shelf life studies are the only real answer to safe shelf life performance, certain facts are known which can serve as a guide in choosing containers and developing formulas.

CONTAINERS may be fabricated from a number of different base metals, including aluminum, black iron, or tin plated steel. Coating systems can vary from single coats of oleoresinous films to multiple coats of polymerized synthetics, such as vinyl chloride, phenolic, or epoxy resins. The oleoresinous coating is used almost entirely for food products. However, the synthetic polymers are the major coating group of interest to users of aerosol containers.

In general the original choice of coating for a particular product lies with the can company rather than the purchaser, especially if any kind of warranty is to apply. The can companies use various coating systems for various products, although the number of coating variables within each company's specifications are of necessity held to a minimum. Usually, there is one coating system for strong solvent-type non-corrosive products, and one for those likely to cause particular trouble. There may be a slight price differential between the two.

Highly alkaline products may tend to strip some coatings, even though corrosion in the true sense may not follow. In this case it may be advisable to use an uncoated can, although if tin plate is used, detinning may result. One approach to this problem has been to use uncoated black iron, but this is relatively unsatisfactory since bare black iron is highly subject to interior rust during storage of the empty containers.

In ordinary spray-type aerosols using propellants 11 and 12, the presence of water in relatively small amounts in undissolved form will invariably cause corrosion through hydrolysis of the propellant with concomitant release of hydrochloric acid. This is the primary reason for keeping condensed or frozen water from dripping into the cans in the course of the filling operation. Truly dissolved moisture in the active concentrate is not as deleterious as free water, but in time it too will usually result in darkening, break down, and lifting of the interior coating. This type of corrosion may or may not be electrolytic in the sense of two metal parts in the can acting as electrodes of different potential. Most frequently, probably, it is not, since the large mass of the contents will be non-conductive.

(*Continued on Page* 119)

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AEROSOLS in review

Toothpaste Package Being Mistaken for Shaving Cream

BECAUSE the same type of package is also being used for shaving cream and similar products, often by the same marketers, aerosol toothpaste is often overlooked by the consumer on the druggist's shelves. This was the finding of a new survey on the dentrifice field by Nesbitt Associates, New York package and product design firm, in which 302 suburban New York and Connecticut consumers were questioned on a whole series of subjects of interest to the dentrifice marketer.

According to Saul Nesbitt, president of the firm, the survey revealed that a number of persons questioned admitted seeing aerosol toothpaste cans on store shelves, but had passed them over in the belief that they contained shaving cream. This indicates, he declared, that "there is a real job to be done to eliminate confusion in packaging, especially by those companies which produce *both* aerosol shaving creams and dentrifices. Where both products are sold under the same brand name, sharper distinction and product identification should be achieved by package color and surface design."

Of the 302 persons covered in the survey, a surprising 71 (almost one-fourth) said they were unaware that dentrifices were even available in aerosol form. Aerosol toothpastes were first introduced to the general public by Colgate last January, and by other major marketers in following months. This lack of knowledge at the consumer level, Mr. Nesbitt asserted, "indicates that manufacturers could do a much more aggressive job, package-wise, at the point-of-sale and in all advertising media."

Those who had tried aerosol toothpaste were high on the idea. Most declared that it was more economical, less messy, and more pleasantly textured than conventional types. They also liked the elimination of the small cap usually associated with the collapsible tube.

Those who had tried aerosol toothpaste and then gone back to more conventionally packaged dentrifices, expressed dissatisfaction either because the aerosol version is too expensive, too bulky or too inconvenient to handle.

Tube toothpaste packages also came in for criticism from the respondents to the Nesbitt survey, mainly because of a widespread charge that the caps are too easily lost and that the neck of the tube generally becomes messy after the first few applications.

The survey revealed a definitely stronger preference for the product's flavor over any bacteria killing features on repeat buying. 182 of the respondents admitted having selected their brands for flavor or mouth-sweetening ability in advertising claims, rather than through any consideration of the product's cleansing and bacteria-fighting qualities. 171 of the 302 people were of the opinion that most nationally advertised dentrifices do the cleaning job with "equal efficiency".

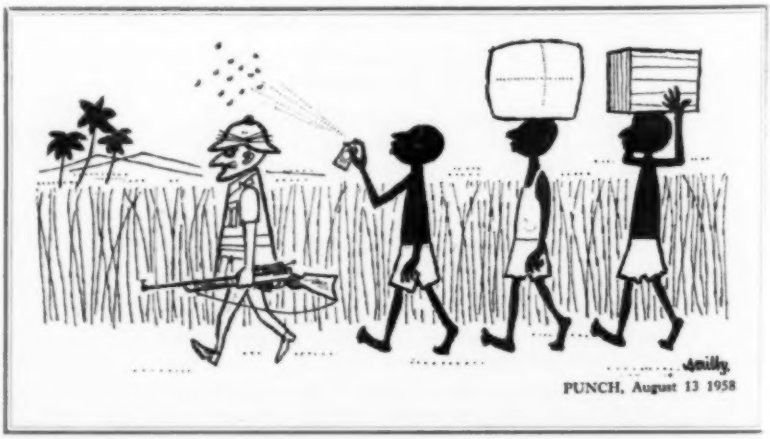
46 of the respondents had either bought or otherwise tried aerosol toothpastes, and only two others expressed preference for a liquid packaged in glass or in a plastic squeeze bottle.

•

THE September issue of *Pressure Gauge*, newsletter of Aerosol Techniques, Inc., Bridgeport custom filler, contains an excellent (and highly technical) article on the solubilities of dermatological substances in various propellant mixtures. Titled "Solubilities of Various Dermatological Substances in a Mixture of Propellant 11 and in a Mixture of Propellants 11 and 12 in a 40/60 Ratio", the data was assembled by the Philadelphia College of Pharmacy and Science under a grant by Aerosol Techniques.

Among the important conclusions drawn in the article's summary are:

"Light liquid petrolatum, heavy liquid petrolatum, isopropyl myri-



PUNCH, August 13 1958

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state, Acetulan and Solulan 97 were all found to be very soluble in all of the propellants studied. Modulan was found to be very soluble in propellant 11 but much less soluble in mixtures of propellants 11 and 12.

"White petrolatum, yellow petrolatum, Solulan 98, and the polyethylene glycols were found to have very little or no solubility in the propellants studied. Modulan, Amerchol CAB, Amerchol H9, Amerchol, and wool fat were found to be soluble in propellant 11 but insoluble (or only very slightly soluble) in the remaining propellants.

"Much time has been spent in developing a method for the determination of the solubility of substances in propellants and in experimentally studying the solubilities of various dermatological medicaments in the propellants. However, none of this information is available in either the aerosol or pharmaceutical literature and the publication of such data in the future will serve as a significant contribution. The data obtained also permits more intelligent formulation of pharmaceutical aerosols for external use."

•

THE enormity of the food field represents a "nagging challenge to everyone connected with the aerosol packaging industry," declares the Aug. 22 issue of *Printers' Ink*, a magazine directed mainly at the advertising world. "Food processors themselves are fascinated with the idea of aerosol containers," the article continues. "It's now a matter of record in other fields that by making it more convenient for the consumer to use a product, the aerosol can encourages wider use. More sales are the result. For the convenience of aerosol dispensing, moreover, the consumer pays a premium, which is split up in the form of markups along the line all the way from the manufacturer to the retailer.

"The first brand in an aerosol container usually winds up as one of the most successful brands. Carter Products, a relative novice in the toiletries field a few years back, is giving the giants a stiff battle with Rise, the first shaving lather in aerosol cans. Helene Curtis is a dominant company in the hair spray field it pioneered."

Turning to toothpaste, the article concludes: "What makes the toothpaste can so interesting to packagers is the fact that it performs no extra function other than dispensing. Other major aerosol products are converted into something by the can — a mist, a foam, a lather. Toothpaste comes out of the can in the same form that it was put into the can. Are consumers ready to pay extra for the convenience of pushing instead of squeezing? So it seems — so far."

•

JACK PICKTHALL, writing in his monthly "Aero Scripts" column in the August issue of *American Perfumer & Aromatics*, tells about the many attempts to outlaw the word "aerosol", especially in technical literature. He writes: "This word is difficult to express in certain languages but there are other reasons why it might not be a bad idea to gently let it slide out of our writings. After all, the word 'bomb', very sensibly, was withdrawn, although I was shocked to see a well-known person feature it in a recent paper.

"The word aerosol is employed in colloidal chemistry and is well defined. Further, there exists a series of surface-active agents which bear the name 'aerosol'. That it is only too easy to use the word when writing, I am the first to admit; it saves lots of thought. Nevertheless, it might in the long run be worth while becoming more precise in our technical, and perhaps our commercial approach."

Mr. Pickthall also reports that the one and only packager of aerosols in uncoated bottles (in the United Kingdom) has discontinued the practice.

•

ALSO in the August *American Perfumer*, Maison G. deNavarre, a monthly columnist, expresses doubt about whether the aerosol is a proper vehicle for dispensing suntan preparations. He writes: "Oils readily lend themselves to formulating into suntan

(*Continued on Page* 119)

NEW

Automatic Assembling Machine For

AEROSOL VALVES

- cam action produces all movements
- adapts readily to design changes

WRITE

For ASM Bulletins on *difficult automation*

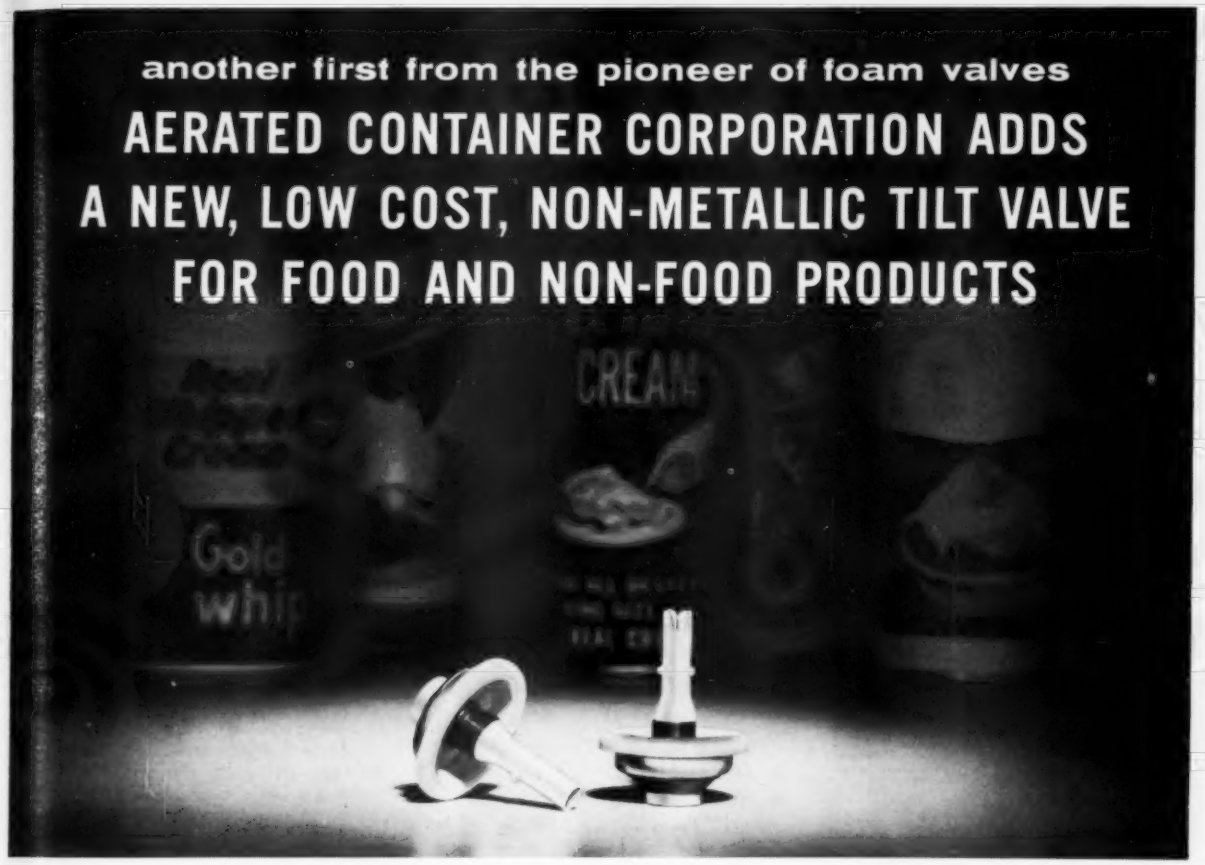
ADVANCED AUTOMATION FOR INDUSTRY

american special machine co.

1405 Webster Avenue, Chicago 14, Illinois

another first from the pioneer of foam valves

AERATED CONTAINER CORPORATION ADDS A NEW, LOW COST, NON-METALLIC TILT VALVE FOR FOOD AND NON-FOOD PRODUCTS



Unique features make Aerated's newest tilt valve the most profitable to specify and buy.

- Spring-diaphragm incorporating a limit lock (patent pending) guarantees uniform preloading and quick acting shut off.
- Specially designed valve seat assures leak proof seal and provides an easily controlled flow for accurate upside down dispensing directly where required.
- Plain or decorator tipped valves are available for all products regardless of density or viscosity.
- Tamper proof, sanitary caps come in a variety of colors to blend with package designs.

Aerated's foam and liquid valves are the result of years of carefully controlled research and testing. They are designed to pressure fill faster and economically with all food and non-food products.

Take the decorator's tip for example. It delivers a pattern foam with maximum override, prevents glossing, and eliminates upsurging. Quality like this is built into the complete line of Aerated Container valves.

Contact your nearest Aerated Representative today, or clip and send in coupon for complete details on our low prices, wide range of valve availabilities and processing equipment. Your inquiry will receive prompt reply.

Manufacturers of Dairy Whipt Dispensers

AERATED CONTAINER CORPORATION
39 South La Salle Street
Chicago 3, Illinois

Please send me information on your complete line of aerosol valves. We are interested in valves for packaging.

_____
(product — foam or liquid — food or non-food)

Name_____ Position_____

Company_____ Phone_____

Address_____

City_____ Zone_____ State (Country)_____

ingenious aerosol research and manufacturing since 1946

AERATED CONTAINER CORPORATION

39 South La Salle Street
Chicago 3, Illinois

NEWS of Pressure Packaging

Par Appoints PR Director

Par Industries, Los Angeles custom filler, last month announced the appointment of Don Schary as director of public relations and sales promotion. In his new position, he will work closely with Sylvan Lefcoe, company president, in an effort to inform and educate the company's customers and its public thorough all communications media.

Don Schary

•

Red Ram Plans Expansion

Red Ram Chemical Corp., New York, last month announced that it is moving to a new plant at 755 Utica Ave., Brooklyn. The company does custom filling, in addition to packaging its own line of products. Jerry Marder is president and Sam Alessi secretary treasurer of the recently formed company.

The new Utica Ave. plant has over 18,000 square feet of space, including plant equipment and warehouse facilities.

•

Sagarin Joins Embassy

Edward Sagarin, formerly associated with Standard Aromatics, Inc., last month joined the staff of Embassy Laboratories, Brooklyn, N. Y. private label cosmetic manufacturer. This is part of an expansion program and followed shortly upon the acquisition by Embassy of their newly enlarged Brooklyn plant.

Mr. Sagarin, editor of "Cosmetics: Science and Technology", is also the author of the "Science and Art of Perfumery"; and was special lecturer in perfume materials and perfumery at Columbia University. At Embassy Laboratories he will supervise sales and customer relations.

•

Lanolin Plus Names Kass

Gus Kass, for the past four and a half years research director, has been elected a vice-president of Lanolin Plus, Inc., Chicago aerosol marketer. His new post includes that of technical director in charge of all product research and development, and manufacturing operations.

•

Toohy to Head Squibb

Olin Mathieson Chemical Corp., New York, has announced the appointment of John J. Toohy as head of its Squibb Division. He succeeds John C. Leppart, who retired.

Carbide Names Dobbelaer

H. Robert Dobbelaer has been appointed "UCON" fluorocarbons office manager by Union Carbide Chemicals Co., Division of Union Carbide Corp., it was announced in New York early last month.

The appointment is another step in the company's organization for marketing of "UCON" fluorocarbons that it will produce at a new unit at Institute, West Virginia. The unit, designed to turn out 50 million pounds a year of "Ucon" propellants and refrigerants, is scheduled to go on stream this fall.

Mr. Dobbelaer joined Union Carbide in 1940. Since then, he has worked with the company's Special Products Division in various administrative and technical capacities, with time out for service with the Army Air Corps during World War II. He holds a B.S. degree in Chemistry from Fairleigh Dickinson University, 1955.

Larrick Heads List of CSMA Meeting Speakers

GEORGE P. LARRICK, Commissioner of Food and Drugs, U. S. Food and Drug Administration, will head a distinguished list of special speakers as the Chemical Specialties Manufacturers Association convenes at New York's Hotel Commodore Dec. 8-10 for its 45th annual meeting. Mr. Larrick's talk is expected to be particularly significant for the aerosol industry, mainly because of the FDA's recent disclosure that it is closely observing products of the cosmetic industry for extravagant label and advertising claims.

Among the other important speakers will be the Surgeon General of the U. S. Public Health Service; Dr. Leona Baumgartner, Commissioner of Health, City of New York; Dr. Justus C. Ward, Head of Pesticide Regulations, USDA; and Fred C. Foy, chairman of the board and president of the Koppers Co.

The meeting will mark the tenth anniversary of CSMA's Aerosol Division, which has quickly become the largest division in the association. It also marks the 45th anniversary of the CSMA. An attendance of over 1000 is anticipated.

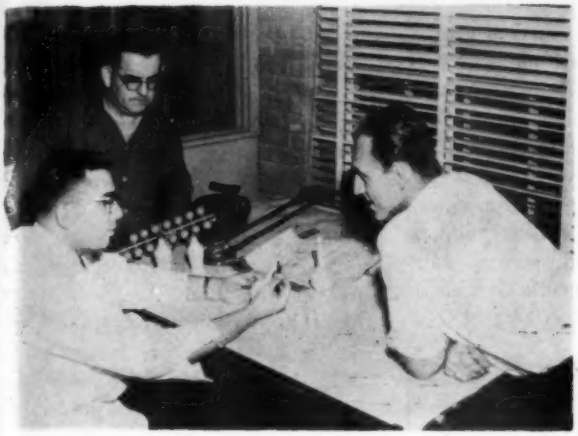
A basic program schedule, issued last month by the association's office in New York, is as follows:

Monday, December 8, 1958 —
Board of Governors, Division Administrative Committees
General Committees, Division Committees
Registration, Aerosol Package Contest Display opens.

Tuesday, December 9, 1958 —
Division Meetings
General Luncheon, Aerosol Package Awards, Speaker
Company "Open House" in evening.

Wednesday, December 10, 1958 —
General Meeting, (Election of Officers for 1959)
General Luncheon:— Annual Achievement Award, Speaker
Annual Banquet in evening.

VCA Initiates New Type of Valve Selling Arrangement



Members of the technical service department (left to right) are Louis Breen, quality control supervisor; George Macura, assistant product engineer; and department head Royal T. Ferry, Jr., check final design and fitments for a new valve assembly.

VALVE CORP. OF AMERICA, Bridgeport, recently instituted a new type of selling arrangement, whereby its technical sales and servicing work has been assigned to the technicians who actually conduct the research, engineering, and production for the company.

VCA's new unit is headed by Royal T. Ferry Jr., the firm's chief engineer, who has been connected with the aerosol industry since 1949. Mr. Ferry, who serves on several subcommittees of the CSMA, has conducted the research and development on many of the aerosol packages presently on the retail market.

Philip Sagarin, VCA president, pointed out that the move was made to make easier and faster exchange of information between the prospective client and the research personnel who will help solve his technical problems. He said it will facilitate adapting the product "for the most effective and most economical presentation," and at the same time accomplish this within a minimum period of time.

In addition to providing a service which assures prompt and efficient product development, according to Mr. Sagarin, VCA's technician-sales team releases the customer's own technicians and chemists for other duties. He pointed out that their technicial department is equipped to handle the entire product, including its pre-testing to achieve maximum efficiency and marketability.

Sterling Acquires Huston

The House of Huston, Trenton, N. J. aerosol veterinary product marketer, has been acquired by Sterling Drug, Inc., major New York drug firm. The Huston firm will be operated as a Sterling subsidiary and John D. Horn, Huston president, will continue in that capacity. Huston has offices, plant and warehouses at Trenton, N. J. and Los Angeles.

According to Sterling, the acquisition supplements and extends its interest in the veterinary field.

•

Dow Canada Plant Ready

Dow Chemical of Canada Ltd., Sarnia, Ont., will begin first Canadian production of methyl chloride and methylene chloride sometime this fall. Both materials are used in the aerosol industry, methylene chloride as a pressure depressant and methyl chloride as a secondary refrigerant.

•

Maurice Rentner Dies

Maurice Rentner, president of the New York perfume house bearing his name, died recently in New York.

•

Shulton Argentine Branch

Shulton, Inc., Clifton, N. J. recently announced the formation of its seventh foreign subsidiary. The newest has been established in Argentina and will go under the name Sulton Limitada. James H. Hatton, who has been with the company since 1956, will manage the new operation.

SALESMAKER!
METAZENE®
(specially refined esters of methacrylic acid, U.S. Patent 2,544,093)
THE SPACE DEODORANT THAT KILLS ODORS CHEMICALLY!

Salesmaker is right! There's a large segment of the buying public that objects to strongly perfumed deodorizers. Turn these objections into sales for you by using Metazene in your aerosol formulations.

Metazene acts differently from other space deodorants in that it actually *destroys odors chemically*. Not a masking agent, not a desensitizer, Metazene stands alone in its complete odor killing properties.

Available to the aerosol merchandiser as an 80% concentrate. Write for technical data and prices.

MOTOMCO, INC.
TERMINAL AVENUE • CLARK, N. J.

Producers of famous **PIVAL®** *and* **PIVALYN®** *Rodenticides*

Program Highlights Listed for Packaging Forum

R. J. HENNESSY, Lederle Laboratories, last month announced details of a full-day's program for the Drug and Pharmaceutical section of the Packaging Institute's 20th Annual National Packaging Forum at Chicago's Edgewater Beach Hotel.

Mr. Hennessy lists two groups of experts divided into a morning and afternoon session on Tuesday, Oct. 14th, as follows: George Robinson, Merck Sharp & Dohme, Chairman.

Pharmaceutical Aerosol Laboratory Developments — Edwin Pomerantz, Pharmaceutical Section, Chas. Pfizer & Co.... Pertinent aspects of pharmaceutical aerosols will be discussed. Emphasis will be placed upon advantages, limitations, problems, propellants, stability and aerosol components. Recommendations will be offered.

Rx for Aerosol Packaging Through Contract Packagers — John C. Armstrong Laboratories.... Advantages of selecting a contract filler versus "doing it yourself" ... Competent, trained personnel ... Specially developed or modified filling equipment... Fixed costs on market testing products without risking large machinery investment.

Rx for Aerosol Packaging... Do It Yourself—Robert A. Foresman, Jr., Aerosol Consultant.... Advantages of "do it yourself" aerosol filling are outlined along with the factors which enter into a decision to undertake filling as a part of overall production on your own premises.

Cost Substantiation of Aerosol Packaging — Samuel Prussin, Director New Products, Aerosol Techniques, Inc.... The cost substantiation of aerosol packaging is discussed in relation to its advantages unobtainable from conventional bottle, collapsible tube, jar and plastic packages as they relate to the pharmaceutical and proprietary fields.

Packaging "Hard-to-Hold" Products in Polyethylene — J. D. Czarnecki, Bradley Container Corp.... This paper will demonstrate how polyethylene can be chosen according to density and be combined with coating materials to produce packages for hard-to-hold products.

Lined Polyethylene Bottles—J. H. Parliman, Plax Corp.... Discussion of lined polyethylene containers covering end-uses, permeation data, and with emphasis on test methods and aspects of quality control. Included is brief coverage of commercial design limitations.

Reasons and Requirements for Internal Linings for Plastic Containers —Ralph H. Thomas, director, Packaging Research Dept., Bristol-Myers Co.... The reasons and requirements for internal coatings for plastic containers and stability of toiletry type products will be discussed.

•

Pfizer Appoints Manley

Fred A. Manley has been named director of advertising and sales promotion for the Agricultural Division of Chas. Pfizer & Co., Inc., Brooklyn.

If you would like to improve or expand your line of

COSMETIC and PHARMACEUTICAL AEROSOLS

you should request our new data sheet describing over thirty

DERMATOLOGICAL CHEMICALS

including Analgesics, Anesthetics, Antibiotics, Antihistamines, Astringents, Antiseptics, Fungicides, Healing Agents, Hormones, Quaternaries, Rubefacients and Sunscreens.

CHEMO PURO MANUFACTURING CORPORATION
150 Doremus Avenue, Newark 5, N.J.

Canadian Chemical Mfrs. Announce Aerosol Program

TWO separate aerosol forums will highlight the two-day meeting of the Canadian Chemical Specialties Manufacturers as that group meets in Montreal's Queen Elizabeth Hotel Nov. 13-14. The meeting, the first held by the newly-formed association is expected to be attended by aerosol delegates from most major U. S. firms and from the majority of Canadian firms in the pressurized packaging field.

Both the aerosol forums will be held during the afternoons of the two meeting days. The first will include "Silicones in Aerosols," and the "Development of Metal Aerosol Containers." The second, scheduled for Nov. 14, will include "Technical Aspects of Aerosol Packaging" and "Pressure Packaging with Nitrogen." Speakers for the program have not yet been announced.

The association's Pesticide Division will also hold two separate forums. The first, in conjunction with the Canadian Beautification Association, and will concern itself mainly with "community" control problems. The second will be titled "Household Insecticides From a Technical Standpoint." A featured speaker will be Charles Jefferson, Pesticide Administrator for Canada, who will talk on legislation.

A company open house will close the Nov. 13 program and the two-day program will end with a banquet in the evening.

•

Super Whip Plant Ready

The Super Whip Valve Co., Chicago, has announced that its new modern plant is now in full production. The single level plant for the manufacture of foam and liquid valves for food packaging is located at 4101 N. Rockwell.

J. M. Turk, vice-president, asserts that the higher land cost of single level plant operation is far more economical than a multiple-story plant. In addition to production facilities, Super Whip has installed a pilot laboratory for customer sample packaging with nitrogen or nitrous oxide-carbon dioxide.

•

Coast Guard Approves Horn

A portable horn, powered by a can of fluorinated hydrocarbon propellant, has been accepted for use on small craft by the U. S. Coast Guard, providing a spare can of propellant is carried. The horn was developed by the Falcon-Alarm Co., 243 Broad Street, Summit, N. J.

•

Lilly Names 2 Researchers

Eli Lilly & Co., Indianapolis, has announced two appointments in its agricultural research department. Dr. Donald H. Ford, a plant pathologist, will conduct investigations in plant fungi and diseases, and Frederick G. Morrison, an entomologist will assist in entomological investigations at the Lilly Agricultural Research Center.

Available in Commercial Quantities

DET

Diethyl Toluamide, the "most" successful wide-spectrum insect repellent developed by the U.S.D.A. and Army Quartermaster Corps.

Montrose DET is guaranteed to contain 95% minimum meta isomer, the most effective isomer as shown by field tests. DET aerosol, lotion and spray formulations were successfully marketed for the past two years. Montrose DET is available for prompt shipment from stock.

Manufactured by

MONTROSE CHEMICAL COMPANY

104-112 Lister Avenue

Newark 5, New Jersey

Sales Agents

R. W. GREEFF & CO., INC.

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1721 Tribune Tower, Chicago 11, Ill.

AIR REDUCTION OFFERS
ALL 4 GASES
AIRCO
NITROGEN AND ARGON
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Write for free booklet:
FACTS ON GASES USED FOR FOOD PROCESSING
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AIR REDUCTION COMPANY, INC.
150 East 42nd Street,
New York 17, N. Y.

Aerosol Techniques Completes New Expansion

COMPLETION of a program of expansion and relocation of its executive headquarters and research-development laboratories has been announced by Aerosol Techniques, Inc., Bridgeport, Conn. The new additions will bring the company's main operational area to 90,000 square feet, thus giving it some of the most extensive aerosol laboratory facilities in the world, including a completely integrated pilot plant.

At the same time ATI announced construction of a new aerosol pharmaceutical manufacturing division, which will specialize in the production of inhalation therapy aerosols, pressurized vitamins, antibiotics, steroids, and allied products for the drug field.

The new offices and research-development center have been located at 1730 State Street in Bridgeport, part of the main factory building at 111 Silliman Avenue. The new pharmaceutical laboratory has been established at the latter address in the space formerly occupied by the administrative quarters.

Fifteen chemists will work in the new laboratory on research, development and the basic compounding attendant on formulation of cosmetic, specialty, food, proprietary medicine and pharmaceutical items. Each chemist has an individual laboratory working area thoroughly equipped for refrigerated and pressure filling operations, with apparatus for specialized as well as routine projects.

ATI's stability department, working as a separate unit in conjunction with the new laboratory, has installed a giant "walk-in" aging room, where aerosol products are kept and studied under accelerated conditions in varying elevated temperatures. Alongside this "oven" there is a large room-temperature storage area where hundreds of products of all types are kept and tested in their various containers.

In this aerial photo, the new research-development center and executive offices are located at lower left, with parking space adjacent. The factory, quality control, and pharmaceutical laboratory are in upper right, with shipping area beyond.

•

Perlman to Be Honored

Nathan H. Perlman, president of the Handy Button Machine Co., Chicago, supplier of gasketed mounting cups or the aerosol industry, was honored by Chicago's west suburban Jewish communities at a testimonial banquet in recognition of his work on behalf of local, communal, and overseas causes.

More than 500 persons attended the event which was held Oct. 1 in behalf of Israel Bonds.

ATI's new research-development laboratories include an integrated pilot plant. Seen at work are some of the staff of chemists, each of whom has an individual laboratory working area.

Aerosol Lung Cancer Detection Method Developed in N. Y.

AN AEROSOL technique for the detection of lung cancer in otherwise unsuspected persons has been developed at the Columbia Presbyterian Medical Center, New York. Developers of the technique, called "superheated aerosols" are Dr. Gustav J. Beck and his associates Drs. Alvan L. Barach and H. A. Bickerman.

The method involves aerosols of a concentrated 15% salt solution in 20% propylene glycol inhaled from a thermostatically controlled nebulizer at 125° F. Inhalation of this substance is reported to increase the amount of secretions from the bronchi and the "washout" of the tumor cells, due mainly to condensation of mists at a higher than body temperature on the bronchi and the drawing of water from the bronchial walls by concentrated salt solutions following the deposition of hypertonic solutions.

The "superheated aerosol method" has also been reported to be effective for relieving bronchospasm in patients with bronchopulmonary disease and for early diagnosis of pulmonary tuberculosis. If the 20% propylene glycol is used without the salt, Dr. Beck reported, it aids in the elimination of retained secretions in bronchial asthma, pulmonary emphysema, and bronchiectasis.

The nebulizer used in the technique is the "Nebu-Halent" developed late last year by Thomas J. Mahon, Inc., Englewood Cliffs, N. J. In the case of bronchial asthma, pulmonary emphysema, and bronchiectasis, the nebulizer is activated by dichlorofluoromethane propellant, and employs such epinephrine-like drugs as phenylephrine and isoproterenol. *Aerosol Age* Nov. and Dec., 1957).

For lung cancer detection and for relieving bronchospasm the solution is propelled by an oxygen cylinder, electric air pump, or a disposable 16-ounce pressurized cartridge. This latter device permits intermittent long-term operation of the nebulizer at pre-timed intervals.

Fire Group Attacks Aerosols

A spokesman for the National Fire Protection Association last month attacked aerosol fire extinguishers as being "more often likely to spread fires than stop them." George H. Tryon, assistant technical secretary of the association, criticized aerosols in a statement calling the attention of fire chiefs to sales campaigns by "racket salesmen of 'gyp' fire extinguishers and alarm systems" for home use.

Mr. Tryon said that a prime need is to alert the public to the nature of the extinguisher and alarm rackets, and yet to encourage the installation of reliable detection equipment and portable extinguishers. Among the "gyp" fire detectors and alarms, Mr. Tyron charged, are "whistles mounted on the top of small aerosol cans," none of which, he declared, "can be relied on to detect fire and give the alarm in a way to allow the family adequate opportunity to escape from a burning home.

In the extinguisher field, according to the NFPA spokesman, there are a host of aerosol types which contain less than a pint of liquid or from 12 to 16 ounces of dry chemical. "Tests demonstrate they are hazardous for the home owner to use because their range is poor, the spreading of the liquid or powder is ineffectual, and the quantity inadequate to control many fires (even) in their beginning stages."

He cautioned that salesmen of such extinguishers and alarm systems may occasionally claim to be representing the local fire department, or that they are representatives of the National Fire Protection Association, and advised homeowners to look for "UL" or "FM" approval seals on the label of the extinguisher or alarm.

•

Shulton Appoints Searing

The Fine Chemicals Division of Shulton, Inc., Clifton, N. J., has appointed E. A. Searing as a salesman in the Midwest territory. He will be headquartered in the Chicago office at 7225 North Cicero.

MAKE YOUR PRODUCTS EASIER TO USE

AND YOU MAKE THEM EASIER TO SELL

TMC®

55, 75, 132 CU. IN.
240 LBS.
ICC APPROVED

KING SIZE
aerosol containers
INCREASE SALES

It is a proven sales-building axiom that when you make it easier to use, you make it easier to sell. Manufacturers of a wide range of fluid, viscous and powdered products are increasing sales by increasing uses with TMC KING SIZE Pressure Dispensers. They are a potent sales weapon for you! Write or phone for the "Latest Thinking on Merchandising Under Pressure."

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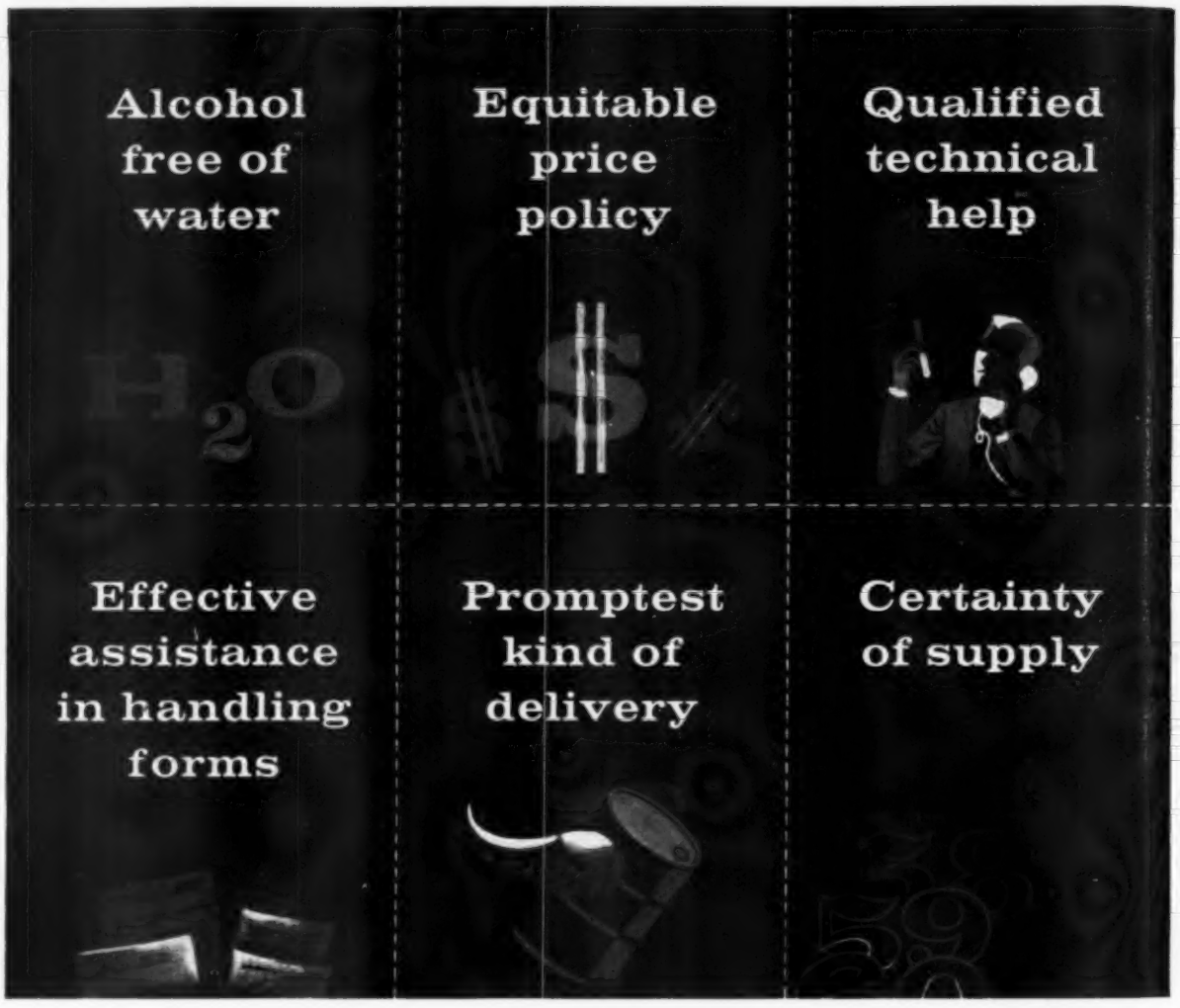


if you'd like

THIS KIND OF ALCOHOL SERVICE

we'd like to hear from you

For use in aerosols, you want an alcohol that is water free, to prevent water corrosion and clogging of the valve; you want an alcohol that contributes to an even spray rate and particle distribution, and wide solvent range.

U.S.I. anhydrous alcohol meets these requirements.

• Good alcohol service should also include assurance of fair pricing practices.

As a U.S.I. customer, you have this assurance.

• Good alcohol service should include quick delivery.

U.S.I.'s network of denaturing facilities, and warehousing and distribution points, just about guarantees this.

• It should include technical personnel to help determine the proper denatured alcohols for new applications.

U.S.I. has such people.

• It should include pointers in handling the complex regulations and forms governing purchase and use.

Our long experienced sales personnel can be of much help here.

• Finally, good alcohol service should offer certainty of supply.

U.S.I. has never failed to supply an established customer.

These are the features that make up our alcohol service. They can save you a lot of trouble. If they check with your idea of a good service, why not have a U.S.I. sales representative call on you.

USI INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
Branches in principal cities

Newman-Green Names Pound

Howard Pound has been appointed new Eastern sales representative for Newman-Green, Inc., Addison, Ill. aerosol valve manufacturer. He was previously with Geigy Chemical Corp. for 15 years, handling purchasing and marketing of agricultural and household insecticides. His offices will be located at 415 Lexington Ave., New York, with a phone number of MUrray Hill 7-7147.

According to Joseph Gregory, Newman-Green sales manager, "This expansion of our Eastern coverage ties in with the increased capacity of our automatic assembly lines, and the continued growth of our sales and manufacturing facilities."

•

B. T. Babbitt Names Two

B. T. Babbitt Inc., New York, has announced the appointments of B. Kimberly Prins Jr. and Robert F. Ferrin, as assistant product managers in the Marketing Division.

Mr. Prins will coordinate the activities of the Marketing Division with Babbitt's advertising program. Prior to joining the company's organization early this year, he was assistant sales manager with Proctor & Gamble in New York for two years.

Mr. Ferrin, in his new capicity, will coordinate the activities of the Marketing Division with Babbitt's Sales Department. He joined the firm in 1956.

•

VAH Unit Marks 10th Year

van Ameringen-Haebler, Inc., New York manufacturer of perfume and flavor materials, recently marked the 10th anniversary of its subsidiary, van Ameringen-Haebler, S.A.R.L., at a dinner celebration for its employees held at Le Grand Veneur in Paris. Attending the function from the parent company were A. L. van Ameringen, board chairman, and Ernest Shiftan, vice-president and chief perfumer.

Jacques Weill, managing director of the Paris unit, commented on the expansion of the company and introduced Mr. van Ameringen, who complimented the local organization on the growth and development of its business. van Ameringen-Haebler, S.A.R.L. produces perfume and flavor materials for the soap, cosmetic, fragrance, food, beverage and related industries in Europe and North Africa, and also serves American companies who have manufacturing and distribution units in those countries.

•

Nestle-LeMur Buys Patch

E. L. Patch Co., a pharmaceutical firm, has been acquired through a stock purchase by Nestle-LeMur Co., New York aerosol marketer. The purchase marks the third acquisition in the pharmaceutical field this year by Nestle-LeMur, which announced that Patch will continue to operate under its own name as a separate division.

Fred Lawson, Patch president, will remain as president of the new division.

•

Rexall Names Schneider

The Rexall Division of Rexall Drug Co., Los Angeles, has announced the appointment of Carl F. Schneider, former packaging engineer in charge of packaging development for White Laboratories, to the post of director of package development.

Foster to New Par Post

Gerald J. Foster, chief engineer of Par Industries, Los Angeles custom filler, has been appointed to the position of plant manager. He will supervise all production and production control, filling specifications, and quality control, in addition to his responsibilities as chief engineer.

•

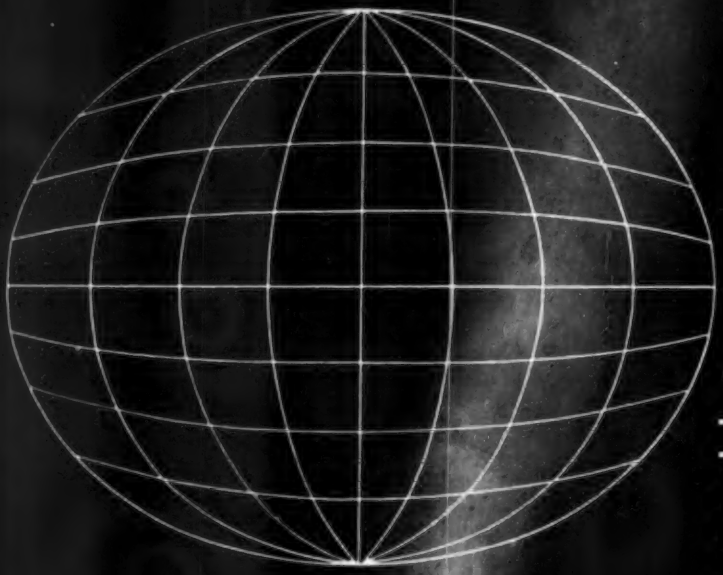
Crown Appoints Fauth

Crown Cork and Seal Co., Inc., Philadelphia, has appointed Frederick E. Fauth to the post of chief engineer, Machinery Division. Mr. Fauth joined Crown in 1938 as a draftsman in the Engineering Department. In July, 1954, he was promoted to assistant manager of the department, and in October, 1955 was named chief engineer of packaging machinery.

Crown's new chief engineer will have his headquarters at the Company's Baltimore, Maryland location. He will be responsible for all mechanical engineering of Crown's Machinery Division, the most modern of its type in the country.

SCREW on TOP
for GLASS and METAL
AEROSOL CONTAINERS
Used to make refillable glass and metal Aerosol Containers
Will fit coated and uncoated bottles. If you have a special bottle send a sample to make sure of fit.
FULL LINE of LAB EQUIPMENT
BUILDERS' supplies complete laboratory set-ups, including laboratory pressure fillers, drill press capping machines, liquid transfer apparatus, can piercing pressure testing apparatus, constant temperature water baths, dry ice coolers, cabinets, formica top tables, tanks and tank racks, etc.
WRITE FOR FREE ILLUSTRATED LITERATURE
BUILDERS SHEET METAL WORKS, Inc.

P. & S. Perfumes for **Aerosol** Products



All over the world

- Eau de Cologne
- Perfumes
- Lotions
- Deodorants
- Brilliantines
- Hair lacquers
- Anti-sunburn oils
- Shampoos
- Powders
- Room deodorants
- Insecticides
- Pharmaceuticals
- Paints and varnishes
- Fixatives
- Shaving Creams

Polak & Schwarz Inc.

667 Washington Street, New York 14 (N.Y.)

7th Aerosol Package Contest

The seventh annual Aerosol Package Contest to select the best aerosol packages of the year will be held in conjunction with the 45th annual meeting of the Chemical Specialties Manufacturers Association at the Hotel Commodore, New York, Dec. 8-10, the CSMA announced recently. Entries will close Oct. 15, and are open to any brand owner or marketer without fee.

Awards will be made on the basis of general sales appeal in each of the eleven groups listed. In addition a "best package in the show" will be selected.

1. Insecticides, repellents and moth proofers.
2. Room Deodorants.
3. Paints, enamels, other protective coatings and paint remover.
4. Other household products — snow polishes, glass cleaner, rug shampoo, water repellents, etc.
5. Shave products.
6. Hair preparations.
7. Perfumes, colognes and toilet waters.
8. Other personal products — dentifrices, shampoos, body deodorants, sun tan oil, etc.
9. Medicinal and pharmaceutical products.
10. Industrial products — lubricants, stencil inks, belt dressings, etc.
11. Food products.

Rules of the contest and entry blanks may be obtained by writing to the Chemical Specialties Manufacturers Association, Aerosol Awards Committee, 50 East 41st Street, New York 17, New York.

•

Babbitt Plans New Aerosols

Babbitt, Inc., New York, is currently working on a number of new aerosol types, and is making a broad study of the possibilities of food and related products in aerosol cans. This fact was revealed by Marshall S. Lachner, Babbitt president, in an address to the New York Society of Security Analysts on Aug. 25. "One area of particular interest to us," he reported, "is aerosol products that meet outdoor living needs. We are also readying for early introduction a line of radically new and different insecticides which we feel confident will give us an important position in that $80 million market."

•

Colgate Appoints Schmick

William M. Schmick has been named new products manager for the Household Products Division of the Colgate-Palmolive Co., New York. He was formerly manager of automotive products for S. C. Johnson & Son, Racine, Wisc.

Prentiss Names Canadian Agent

Charles Albert Smith, Ltd., Toronto, has been appointed exclusive Canadian representative and distributor for Prentiss Drug & Chemical Co., New York, manufacturers of basic insecticides and Warfarin rodenticide. Until the present appointment, the Canadian firm acted for many years as distributor for John Powell & Co.

Charles Albert Smith, Ltd. maintains sales offices and warehouse stocks of Prentiss materials in Toronto and Montreal and has a Western branch at New Westminster, B. C.

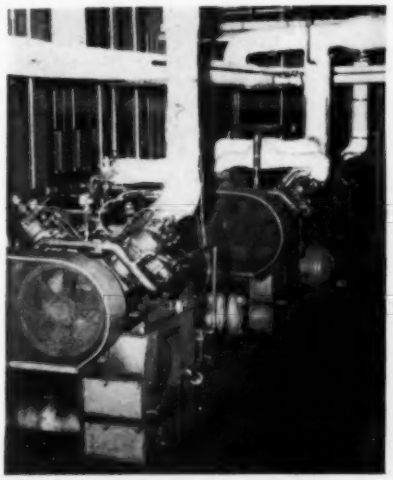
AEROSOL Executives

know that

MONSEN
Refrigeration

custom installations

are Superior



SINGLE & TWO STAGE EQUIPMENT as installed for COLD FILL PRODUCTION LINES.

This equipment is capable of chilling enough propellant to —40°f and concentrate to —15° to fill 140 8 oz. cans a minute.

—Write or call for further information—

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REFRIGERATION
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CHEMICAL CO., INC.

America's Newest
Chemical Manufacturer
Devoted Exclusively to . . .

AEROSOL PACKAGING

"REDRAM" brings to the aerosol age a modern chemical plant of 20,000 square feet, completely equipped with the most modern automatic manufacturing apparatus available today.

"REDRAM" offers new profit making opportunities in the world's fastest growing industry . . . PRESSURIZED PACKAGING. We at "REDRAM" are equipped to do the following for you . . . Formulate and develop new products, offer bulk storage facilities, pressure, cold fill and Nitrogen fill, supply samples and do experimental work. Our merchandising division can solve the problem of companies requiring national, local, and international distribution.

QUALITY CONTROLLED AEROSOL BOMBS AND SUPERIOR SERVICE IS OUR AIM!

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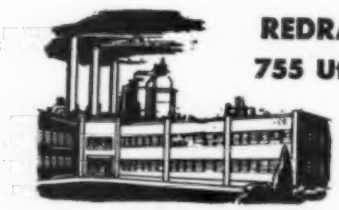
Manufacturing Chemists and Aerosol Packaging Specialists

- Insecticides, Repellents and Moth Proofers.
- Room Deodorants.
- Paints, Enamels, Other Protective Coatings, Remover.
- Household: Polishes, Glass Cleaner, Rug Shampoo, etc.
- Shave Products.
- Hair Preparations, Hair Sprays.
- Personal: Shampoo, Body Deodorants, Sun Tan Oil, Drugs.
- Medicinal and Pharmaceutical Products.
- Industrial: Lubricants, Stencil Inks, Belt Dressings.
- Glass and Plastic Aerosols, All Products.
- Services: Aerosols in Glass and Metal, Liquid Filling in Metal, Glass and Plastic Containers, Product Research and Development.
- Laboratory facilities available—licensed chemists on premise.



REDRAM CHEMICAL CO., INC.
755 Utica Avenue, Brooklyn 3, N. Y.

OPENING SOON . . . WRITE TODAY FOR COMPLETE INFORMATION

Chisholm-Ryder Acquires Firm

The Chisholm-Ryder Co. of Pennsylvania, Hanover, Pa., last month acquired the International Filling Machine Corp., Petersburg, Va. The acquisition, to become effective immediately, was jointly announced by Edward J. Abendschein, vice-president of Chisholm-Ryder, and Stanley S. Dennison, executive vice-president of International Filling Machine Corp.

International Filling Machine, one of the largest firms in its field, manufactures a complete line of liquid filling machinery, ranging in sizes from small hand-filling machines to high-speed rotaries capable of filling 300 quart containers per minute. All types of liquids are handled from fine foods and drugs to highly corrosive acids, and the machinery is made for gravity or a combination of the vacuum-gravity filling methods.

All manufacturing assets of International were acquired. The International operation will be moved to Hanover and integrated with Chisholm-Ryder's present facilities. Stanley S. Dennison will be retained as a consultant. Chisholm-Ryder, is one of the leading producers of wrap-around labeling machinery, can casing machines, case sealers and container-handling equipment.

•

Keller Joins Fries & Fries

Dr. Karl T. Keller, chief chemist of Schimmel & Co., since 1952, has joined the chemical research staff of Fries & Fries, Inc., Cincinnati. He is a well known authority in the aromatic field and served with Schimmel for 20 years. He is a former director in charge of production and development of Schimmel's plant at Miltitz, Germany.

•

Air Pollution Conference

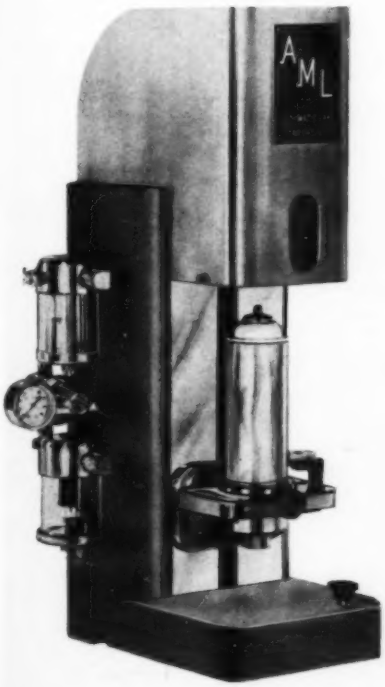
The National Conference on Air Pollution will be held at the Sheraton Park Hotel in Washington, D. C., Nov. 18-20. The interdisciplinary meeting has been called by Dr. Leroy E. Burney, Surgeon General of Public Health Service, U. S. Dept. of Health, Education and Welfare.

Evans Research Adds to Staff

Evans Research and Development Corp. New York research and consulting firm has announced the addition of five staff members, including two assistant research chemists, two laboratory technicians, and an assistant cosmetologist.

The assistant research chemists are Peter Nicholakakos and Jerry Kaplan. Mr. Nicholakakos comes to Evans Research from the U.S. Army Chemical Corps. He has a B.S. in chemistry from the Polytechnic Institute of Brooklyn, and attended Brooklyn College Graduate School. Mr. Kaplan received his B.S. in chemistry from City College of New York. Before. coming to Evans Research, he was a medical aidman in Korea.

Donald W. Werner is a graduate of Brooklyn Technical High School. He and Richard H. Pearce are new laboratory technicians. Mr. Pearce was previously at Cornell University studying chemical engineering under a Sloan Foundation Scholarship. The assistant cosmetologist is Theresa J. San Filippo.



PILOT RUNS?

Experimenting with various size containers?

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"Pneumati-Crimp"

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ONLY 10 SECONDS TO SET!

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Solving perfume problems is our business

Have you

A new product coming up?
Your most important decision may be the type of perfume to use.

A "tired" product?
You may find it only needs the stimulus of a fresh new fragrance.

An aerosol problem?
You will need especially adjusted compounds for your pressurized products.

This is an invitation

to make use of the facilities of our aerosol laboratory for advice, suggestions, and samples.

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Pfizer Opens New Plant

A giant distribution center containing more than 160,000 square feet of office and warehouse space was put into operation in Clifton, N. J. last month by Chas. Pfizer & Co., Inc., Brooklyn, N. Y. drug and chemical firm. Largest of six such centers maintained by Pfizer throughout the country, the Clifton unit will supply pharmaceutical, chemical and agricultural products to customers in a 14-state northeastern area.

The single-story structure, situated on a nine and one half acre tract at 230 Brighton Road just off Route 3, is about ten miles from the Lincoln Tunnel. Scheduled for formal dedication Oct. 30, the center will employ approximately 150 persons.

The 130,000 square-foot warehouse area includes 40,000 square feet of air-conditioned space, of which 10,000 square feet is a cold storage box in which heat-sensitive drugs and chemicals are kept at temperatures just above the freezing level. Electronic office equipment and materials-handling devices have been installed to make possible fast processing and delivery of orders, and six truck loading areas with four dock levelers and three railroad unloading docks will aid in product shipment.

The inventory build-up at Clifton began Aug. 9, and the move was completed Saturday, Sept. 6. The company's four marketing divisions — Pfizer Laboratories, J. B. Roerig and Company, Chemical Sales and Agricultural Sales — have offices in the new building.

Besides the one at Clifton, Pfizer maintains distribution centers at Chicago, San Francisco, Dallas, Chamblee, Ga. (Atlanta) and Portland, Ore. The company is a leading manufacturer of antibiotics, vitamins, hormones, packaged pharmaceutical specialties, fine chemicals and products for animal health and nutrition.

•

Bon Ami Names Schwaikert

Bon Ami Co., New York, has announced the appointment of Ralph A. Schwaikert to the position of vice-president in charge of manufacturing and mining. He will be responsible for manufacturing operations at Manchester, Conn.; Newark, N. J.; Montreal; and Sydney, Australia. He joined the company in 1953.

•

Shulton Revamps Europe Sales

Shulton, Inc., Clifton, N. J., announced recently that all of its European activities will be handled through the company's new European Administration Office in New York. John H. Douglas, who had been general manager of Shulton, N.V., Netherlands exporting subsidiary, will manage the new coordinating section.

To replace Mr. Douglas in the Netherlands, the company named Hans H. Gottmer, who had been assistant general manager.

•

Bon Ami Names Ad Agent

Bon Ami Co., New York, marketer of "Jet Spray Bon Ami", has named Cole, Fischer & Rogow, Inc. to be its new advertising agency. The new agency is Bon Ami's third selection this year.

Kuhn to Head Cons. Pack.

Edward L. Kuhn has been elected president and general manager of Consolidated Packaging Machinery Corp., Buffalo, to succeed Edward G. Kuhn, who retired. The new president served as vice-president in charge of sales since 1955, before which he was sales manager.

The retiring president, who held the post since 1943, will continue to serve on the company's board of directors.

•

D&O Moves in Philadelphia

The Dodge & Olcott, Inc. Philadelphia sales office, under the direction of Matthew J. Phelan, has been relocated at the 69th Street Theater Building, Garrett Road and Westchester Pike, Upper Darby, Pa. For more than 40 years, the D&O Philadelphia office was in the 503 Arch Street building, in the famous Independence Hall district. This building, however, has now been condemned to make room for the new Independence Mall now under construction.

CHECK *Cowles* FOR DIETHYLTOLUAMIDE (DETAMIDE 95)

HAVE YOU CONSIDERED COWLES for N, N-diethyltoluamide? Acclaimed by scientists as the best repellent yet against most species of mosquitoes, fleas, chiggers, ticks, deer flies, biting gnats and sand flies—discovered and developed by the U. S. Department of Agriculture.

Cowles DETAMIDE 95 (minimum assay meta isomer—95%) is highly resistant to perspiration and normal wear-off. A greaseless, colorless liquid with a pleasant cosmetic fragrance—ideal in formulated products such as cosmetic creams, lotions and pressurized products.

Full technical information and prices upon letterhead request.

DETAMIDE 95 is packed in 5 gal. and 55 gal. drums—stocks available for immediate delivery.

Cowles

ORGANIC CHEMICAL DEPARTMENT

CHEMICAL COMPANY

Cleveland 3, Ohio

Equipment— Processes— Bulletins—

New Aluminum Container

White Metal Manufacturing Co., has announced a new, small, low-priced aluminum aerosol can as the latest addition to its series of "Aerotainers," developed since 1954.

"Aerotainer 1P 114," the new unit, is a one-piece aluminum can with 1¼ inch outside diameter and a top orifice opening for the standard one-inch mounting cup. Practical lengths for the container are from three inches to five inches. In the 1¼ inch diameter can this means 1.902 to 3.202 fluid ounces volume.

Basically the new White Metal pressure dispenser is a standard cylindrical aluminum can with a round, curved top to fit the one-inch mounting cup. The manufacturing process is performed on the standard production equipment used in manufacturing collapsible tubes and the same top quality decoration is achieved.

Prices on "1P 114" are said to be correspondingly lower than prices of other pressure containers of equivalent contents volume.

•

Lab Propellant Packages

Pennsalt Chemicals Corp., Philadelphia, reports that small laboratory users are finding increased use for "handi-cans" of "Isotron" 12 and 14 aerosol propellants. The small units can be chilled in an ordinary lab freezer and used with a piercing valve eductor to pressure aerosol cans.

•

Polyethylene Valve Gasket

Action Plastics, Inc., Paterson, N. J. last month announced the development of a polyethylene composition cup gasket for valve cups which can be used instead of flowed-in gaskets. The new gaskets, which are reportedly less expensive than flowed gaskets, can be purchased as a separate item by the valve manufacturer and inserted into the cup seat at the valve plant. Flowed-in gaskets are usually applied to the cup by a special contract applicator and then shipped back to the valve maker.

The gaskets have been designed so that they will hug the inside wall of the cup and not fall out after assembly. If placed automatically into the cup during the valve assembly operation, the total assembled cost will be reportedly less than the flowed-in type.

Samples are available by writing directly to the company at 50 California Ave., Paterson 3.

•

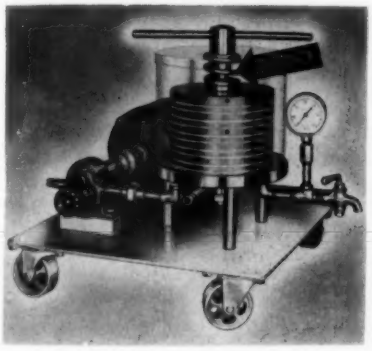
Aerosol and Sachet Filler

An air-operated pump unit that is said to simplify aerosol packaging and sachet filling has been announced by Kingsbourne Products Ltd., South Coast Road, Peacehaven, England. Since it is air operated, the unit can be used safely in flame-proof areas. It can be stalled by back pressure without injury, thus permitting stoppage of the flow of material by means of a simple cock on the fluid line from the pump.

Coupled pumps can be supplied for proportioning, thus enabling propellant to be mixed with the product in the desired proportion. It is claimed that the pumps provide a more efficient system of feeding the hoppers of sachet filling machines than by tipping in the material from a bucket.

•

Aerosol Product Filter



A new positive cylinder disk filter that is said to be particularly suited for installation in aerosol plants has been announced by Ertel Engineering Corp., 90 Front Street, Kingston, N. Y. Called the Model ECS, the new unit is available in sizes to accommodate seven and 12-inch diameter asbestos filter sheets. It is constructed from stainless steel and is available with or without pump or motor.

In the photograph a cut-away of the cylinder may be seen showing the filter's high compression spring design feature. The single tightening assembly is said to assure a perfect seal and is also reported to insure against loss of liquid due to evaporation or drippage, which allows use of the unit to handle volatile liquids.

•

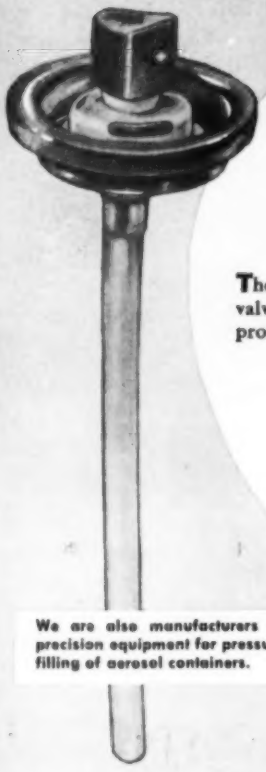
New Builder's Catalogue

Builders Sheet Metal Works, Inc., New York, has announced publication of a new catalogue, listing equipment for both nitrogen and liquefied gas propellant and complete laboratory installlations. Copies are available directly from the company at 108-110 Wooster Street, New York 12.

•

Spray Bubble Bath

The Allen B. Wrisley Co., Chicago, has announced what is believed to be the first aerosol spray bubble bath, called "Gay Bouquet" in a seven-ounce metal container retailing at $1.50. It will be marketed in three fragrances: "French Lilac", "Petal Blossom", and "Garden Spice".



We are also manufacturers of precision equipment for pressure filling of aerosol containers.

OEL AEROSOL VALVES

tops in value, but not in cost

The sales appeal of a good product is, of course, strongly affected by the aerosol valve that dispenses it. OEL Valves are used on many well known spray and foam products. Among the advantages they offer the product manufacturer are:

1. Faster filling in pressure loading.
2. Minimum propellent loss.
3. Uniform flow rates due to "above-valve-control".
4. Safer with inflammable materials.
5. Simplified inventory control due to universal valve.
6. Mechanical break-up dispensing at no premium.
7. Adaptable for products pressurized with nitrogen.

We will be glad to send you samples for testing with your product, if you will tell us container size and dispensing fitments desired.

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Your economy begins—and package quality improves —when you specify Arenco filling and sealing machinery. They have an enviable reputation throughout the field for delivering top profit performance on every operation. Each is engineered and manufactured to give you *more* than standard requirements in materials, craftsmanship and operating efficiency. Each can be depended upon to give years of service — and pay for itself in short order. You'll be making the most of your packaging machine investment when you put Arenco equipment to work in your production. Complete data will be sent to you promptly. Write today!

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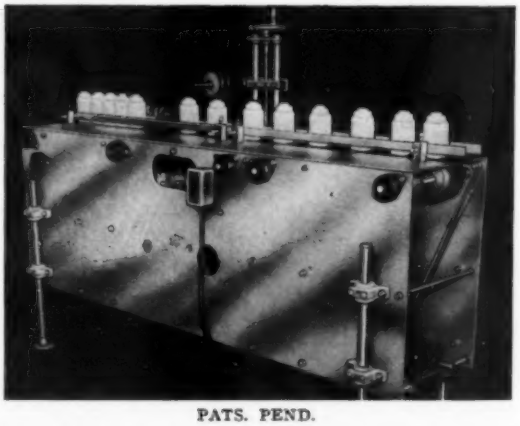
25 West 43rd Street New York 36, N. Y.

CODE DATING MACHINE FOR AEROSOL CANS

Will mark the top or bottom or both at the same time



PATS. PEND.

Kiwi® Coders Corporation announces a new power-driven machine for economically and automatically code dating the concave bottoms of pressurized cans or flat bottoms of other round containers. Can also be used as a work table for affixing parts to cans.

Send details on your specific marking problems.
Literature available on all types of applications

Kiwi® Coders Corporation

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Continental Can Reports Speedier Can Making Method

RECENTLY developed equipment to produce metal cans at speeds of more than 750 a minute, 50% faster than previous production lines, has been successfully tested in commercial operation by Continental Can Company, General Lucius D. Clay, chairman of the board, announced late last month.

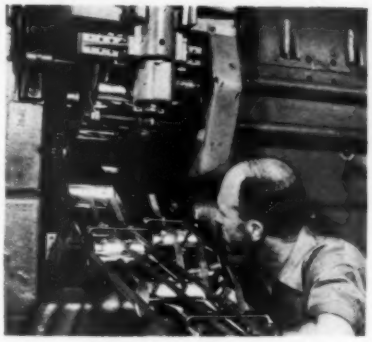
The new "two-high" can line uses a technique of making can bodies in tandem and then separating them, along pre-scored lines, into individual units. General Clay said the line was developed in 1956 at Continental's Metal Research and Development Center in Chicago, and has now been in commercial operation for a year.

"We have delayed this announcement until now because we wanted to be fully satisfied that the new method is commercially feasible and will enable us to make economies in can manufacturing," he explained. "The first commercial line has now proved fully effective, and additional lines are nearing completion."

The conventional method of making can bodies, General Clay said, is to form cylinders by wrapping individual "blanks" of steel around a horn or mandrel. The opposing ends of the blanks, bent at an angle of nearly 180 degrees, are interlocked, and the seam thus formed is then soldered.

Normally this operation is conducted in a continuous flow at speeds of 425 to 550 can bodies a minute on a high-speed line. One can end is then attached to the body, and the cans are tested for leaks by air pressure, at the same speed, with defective cans automatically rejected by the tester. The other end of the can is applied at the canner's plant after the can is filled.

General Clay explained that the new Continental method involves the use of double-sized blanks which are scored before they are formed into cylinders by means of a scoring device set to make a partial cut. After the tandem cylinders have been formed and the seam has been soldered, the double bodies are separated along the score line.



The first "two-high" body line is being operated at less than its ultimate speed, and in subsequent lines speeds will be increased substantially. For several years the company has also been exploring the possibility that can bodies can be made in multiples greater than two at even higher speeds.

Although the cans which have been made for the past year on the prototype line have been of the type used for processed food products, the new technique is adaptable to the manufacture of cans of other sizes and types.

General Clay said the principal economy made possible by the new development would lie in the increase of production per man hour.

•

Fire Ant Destroyer

Michigan Chemical Corp., St. Louis, Mich., recently announced a methyl bromide container, packaged under pressure, which can be used to kill the highly destructive fire ant. Liquefied methyl bromide is packaged under pressure directly into an aerosol-type container and the liquid vaporizes to a gas on release. Since the gas is heavier than air, it flows down into the underground.

The product is called "Pestmaster Soil Fumigant-1", and, though it is highly toxic, it is expected to find widespread use in lawns, backyards, playgrounds, etc. in the Southern States' area affected by fire ant invasions. The imported fire ant is becoming an increasing economic problem in this area.

world's largest assortment of metal and plastic

Aerosol CAPS

all sizes and styles for all types of aerosol containers

write for samples and prices

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Aerosol bouquets

that have proved their effectiveness in the production of industrial and consumer products

MINT BOUQUET.....No. 3121
APPLE BLOSSOM...No. 3122
OIL SWEET PEA.... No. 3123
OIL WISTARIA.....No. 3124
OIL GARDENIA..... No. 3125
OIL BOUQUET E.T. No. 3126
OIL BOUQUET P.C. No. 3127
OIL BOUQUET H.D. No. 3128
OIL BOUQUET K.L. No. 3129
OIL BOUQUET H.C.S. No. 3130

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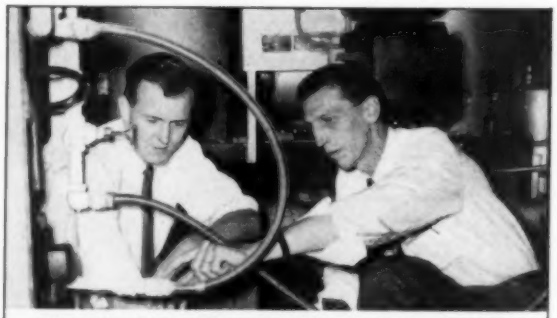
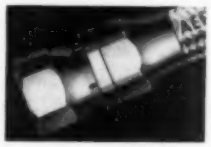


Chemical Handling Problems Solved With Aeroquip 2802 Hose of TEFLON*

In more than a year of service, Aeroquip 2802 Hose Lines of Teflon with patented** ***super gem*** Fittings have performed flawlessly for Connecticut Chemicals (Canada) Ltd., aerosol packaging firm. 2802 Hose is used to convey methylene chloride plus other chemicals and fluids. It is chemically stable and inert, preventing hose deterioration and flaking or product contamination. It has high lubricity to assure thorough line drainage and flushing, withstands temperatures from −100°F. to +500°F. Write for Bulletin IEB-26B.



*Dupont trade name for its Tetrafluoroethylene resin
super gem is an Aeroquip Trademark.
**U.S. Patent Nos. 2,883,567 and 2,731,279

Aeroquip

AEROQUIP CORPORATION, JACKSON, MICHIGAN
INDUSTRIAL DIVISION, VAN WERT, OHIO—WESTERN DIVISION, BURBANK, CALIFORNIA
AEROQUIP (CANADA) LTD., TORONTO 18, ONTARIO

TGA Educational Booklets

The Toilet Goods Association, New York, last month completed a project designed to give high school and college students a picture of the operation of the toilet goods industry and the manufacture, use, history, and sale of its products. Six booklets, entitled FRAGRANCE, GROOMING, HAIR, MAKE-UP, MANICURE, and TREATMENT, are being distributed to home economics teachers and school and college libraries throughout the country.

Each booklet consists of four chapters, one on history, use, manufacture, and marketing. The History is by Miss Jill Jessee, author and consultant who has made a study of this subject; use by Myra N. Conklin, writer and cosmetic expert, manufacture by H. D. Goulden, scientific director of TGA, and marketing by S. L. Mayham, executive vice president of TGA. The booklets are written in popular vein and are not to be considered as extensive treatises on any of these subjects.

•

LP Gas Valve Booklet

An illustrated booklet showing and describing valves and other liquefied petroleum gas equipment has been published by the The Bastian-Blessing Co., 4201 West Peterson Ave., Chicago 46. Called "Catalog L-100" it shows valves, gauges, manifolds, pressure regulators and other important equipment for filling with liquefied petroleum propellants.

•

British Multiple Packager

Hunt Partners Ltd., London, has acquired distribution rights in the United Kingdom for an automatic system of multiple can cartoning. The rights cover the Dacam cartoning machine, on which two, three, four, or six aerosol containers can be packed in cardboard multi-pack sleeves at rates up to 750 dozen per hour. Further information is available directly from the company at Theydon Road, London E.5.

•

Squeeze Bottle Extinguisher

A nylon squeeze bottle is being used for a small fire extinguisher in England. Streatham Laboratories, London, has announced a new carbon tetrachloride unit, called the "Cyca 13 Fire Extincter."

Insect Repellents

(*From Page* 61)

alone, no matter how well it does the job. Instead, the formulator for the agricultural market may need to formulate a repellent with an oil base insecticide, which will extend the effective life of the repellent and at the same time give the farmer the satisfaction of seeing the pests die.

"Since the FDA's elimination of methoxychlor from dairy cattle sprays last year, we see insect repellents as achieving a new role in agriculture. Through use of an effective repellent, cattle won't be affected no matter how many flies there are in any one vicinity. Our research staff is currently working extensively with automatic pressurized cattle applicators and special formulas for various areas of the country. However, we have found that our 5% formulation is effective in the majority of cases."

MGK reports that its formulation has no adverse effect on synthetic fibres such as orlon, dacron, and nylon, but admits to a slight darkening and hardening effect on rayon. "The plasticizing effect is not as intense as formulations depending solely upon diethyl toluamide, or formulations containing ethyl hexanediol, or dimethyl phthalate. This is important to fishermen, gardeners, golfers, swimmers, and patio loungers who are bound to handle either plastic articles or painted surfaces.

"The formula (with isopropanol) has been shelf-tested to determine its stability, its effect on pressurized cans, and its effect on the valve's working parts. From these tests, our work indicates the formula is safe to use in lacquer-lined cans. We found it had no effect on brass and nylon valves, and nylon and nylon valves. We used unpainted tinplated cups with a flowed-in gasket exclusively, and the formulation has no adverse effect on any of these parts.

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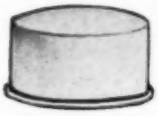

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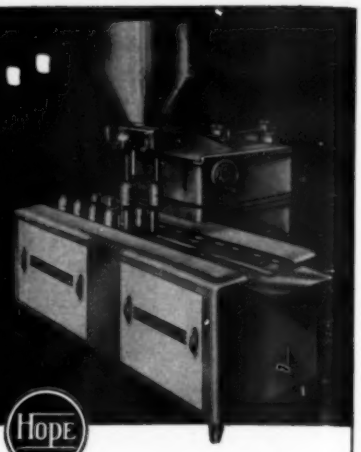

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The FDA ruling on methoxychlor has also had a bearing on the development of still another insect repellent developed primarily for incorporation in cattle sprays. Called "Tabatrex," the product is being produced by Glenn Chemical Co., Chicago. Though admittedly not as effective against mosquitoes as the other materials mentioned above, Glenn reports that its "impressive" repellent action against flies, roaches, ticks and similar insects is expected to make it especially applicable to use as a cattle spray, pet sprays, porch-patio-picnic sprays, and industrial sprays.

Chemically, "Tabatrex" is di-n-butyl succinate, and is miscible with petroleum distillates, petroleum ether, alcohol, and acetone. It is odorless, colorless, and non-corrosive and is reported to be "unusually" stable.

Glenn's president, Joseph Abrams, reports that the material has had eminent success as a non-aerosol cattle spray this year, particularly in the Midwest. One Iowa formulator reports selling 21,000 gallons of Tabatrex-base sprays against 7000 gallons of other types. One Wisconsin manufacturer reports that Tabatrex sprays have outsold other sprays 9 to 1 in 1958. But despite this success in the non-aerosol field, Mr. Abrams admits that "aerosol merchandisers do not seem to have fully grasped the possibilities of repellent products. Their hesitation in entering the field is undoubtedly justified by a desire to watch developments and to be ready to introduce a product when the market is ready. We believe the market is ready for livestock sprays, pet sprays, porch-patio-picnic sprays, and industrial sprays containing repellents.

"As with many other products, however, consumer acceptance will depend, in the final analysis, on the degree of promotional effort, on the quality of the product and its performance, and on the severity of insect populations."

Tabatrex's compatibility may be one of its chief selling points. Again quoting Mr. Abrams, "We have not yet found an insecticide or commonly used solvent or propellant with which it is not compatible."

THIS then appears to be a fair summary of the insect repellent picture as of October 1958:

There have been a whole series of good, highly-effective insect repellents developed over the past two years. Chief among these is diethyl toluamide, MGK 11 and MGK 326, and Tabatrex, although there are some older ones that are still highly effective. In physical characteristics, compatibility, stability, etc., all of these are ideally suited for aerosol application, either alone or in combination with other repellents, insecticides, sunscreens, etc.

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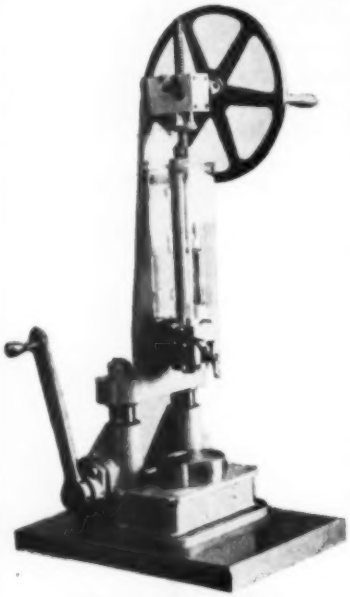

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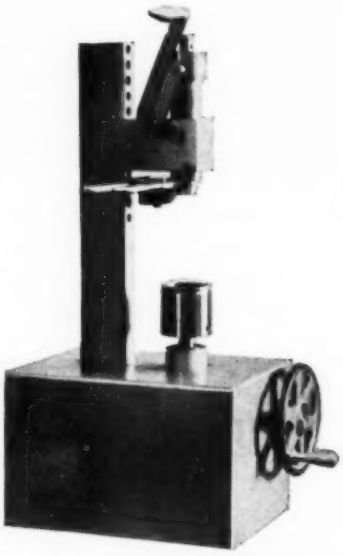

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might be termed "major" consumer marketers have accepted the repellent for consumer market and are backing it with promotion and advertising. In this category belong S. C. Johnson and Union Carbide (which have probably done most on a national basis to "sell" the insect repellent idea), DuPont, McKesson & Robbins, and the Boyle Midway Division of American Home Products.

The job of educating the retail dealer has not been done effectively. Too often he or his clerk have not been informed about the special qualities of the insect repellent line they are selling. When asked for something to fight insects, the majority still recommend only insecticides, without even telling the prospective customer that good aerosol repellents are available.

The job of educating the consumer has gone equally badly. Not enough in the way of effective publicity has appeared in leading consumer magazines or in such publications as *Outdoor Life* (or others where there is a tremendous potential market among the "outdoor" readership). Even advertising efforts appear to have been halting and unsure. In a large number of cases, the consumer is not told outright that the repellent product is distinct and different from an insecticide, and that it will perform a far different function.

Much work needs to be done before next year, which, despite the faltering in 1958, should still be the biggest year yet for insect repellents.★

Dry Ice Propellant

(*From Page 76*)

even as with nitrogen, the hot water safety test can be dispensed with. Container and valve leakage could be safely determined by leak testers.

Carbon dioxide is a naturally occurring gas and in fact is generated by the respiration of plants and animals (among other ways). Products pressurized with CO_2, particularly pharmaceuticals, would contain such a small quantity of CO_2 (in comparison with the amount of the gas in the free atmosphere) that a patient inhaling it would be unaffected. If, for example, one liter of a medicinal remedy absorbs 5000 mg. of CO_2, one ml. contains only 5 mg. However, in one inhalation of one liter of air there is as much as 180 mg. of CO_2. Thus the inhalation of the pressurized remedy would change the total CO_2 inhaled by only about 2%.

Extensive research extending over many years and long practical experience have clearly shown that CO_2 in small concentrations (and even more so in heavy concentrations for pressure containers) exerts an arresting influence on the growth of fungi and other decay producing microorganisms. It is well known that the presence of CO_2 in the transport and storage of milk, cream, fresh vegetables, meat, and other perishables has a preserving effect and actually retards bacterial growth. Therefore it will probably not be necessary to pasteurize, sterilize, or otherwise raise the temperature of products to be pressure packaged with CO_2. Also, in packages pressurized with the new transparent ice, it is possible to stabilize sensitive products against oxidation and polymerization, conditions likely to occur with volatile oils, vegetable oils, and other organic substances. Further, with the oxygen removed, or at least insulated, corrosion and other galvanic metal disturbances are reduced to a minimum —thus allowing the use of different kinds of metals for the various container and valve parts, generally without special treatment. Also certain products, which under other conditions would cause container pin holes or "rust through", could be filled into unlacquered cans.

Some research is still required on this new ice to determine its pressure behavior and other characteristics in special product types. Particularly important are studies to define more clearly the CO_2 absorption rate and saturation points for the most important types and mixtures of products packaged under pressure. Such research could take, as a starting point, already published data on the reaction of CO_2 with different liquids

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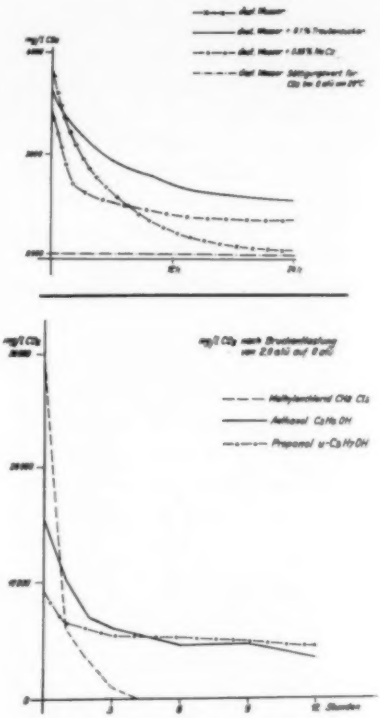
and the necessary new data developed by systematic studies restricted to the pressure packaging field. An indication of the kind of study involved is shown in the charts illustrated. Chart 10 shows a somewhat surprising relationship between different kinds of alcohol in the presence of CO_2 under pressure. Only methanol appears to follow normal gas laws in that the CO_2 absorption rate corresponds with the pressure line. The aliphatic alcohols show not only a very low absorption rate, but also this rate seems to be quite independent of pressure. The favorite alcohols for use in cosmetic mixtures, propanol and isopropanol, show only about half that of the ethanols, but when mixed with water they show a better absorption reaction (illustration 11) than the ethanols. In such a water mixture these show sharply reduced and irregular absorption rates.

On the basis of these studies, which should be broadly expanded to cover many other different kinds of products used in pressure packages, it may be concluded that carbon dioxide, with certain exceptions, is not completely soluble in the different liquids. There is, however, a definite absorption or storage within the product. However, this is an imperfect absorption, thus permitting the relatively free escape of the gas as the head space increases.

Illustrations 12 and 13 show that the escape rates vary widely with the different products. Illustration 12 shows that in certain water mixtures this escape rate is very slow and seems particularly influenced by the addition of organic and inorganic salts. Illustration 13 shows that alcohol mixtures, and particularly methylene chloride, vastly accelerate this rate of change.



12. (Top) Discharge rates of CO_2 from water and various water mixtures. 13. (Bottom) Discharge rates of CO_2 from methylene chloride, ethanol and propanol alcohols.

SUMMARY

These observations on the behavior of carbon dioxide have importance in connection with its use in the form of transparent dry ice as a propellant in pressurized packages. Particularly important is that the degree of solubility and rate of absorption, together with an accelerated rate of discharge makes it, for certain products, an

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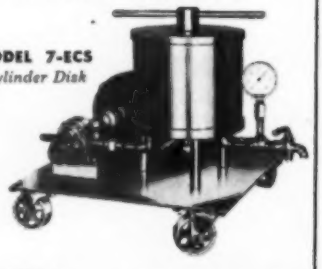

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ideal propellant. It should fill a gap in this rapidly growing field of food stuffs, toothpaste, etc. On discharge there is some atmospheric expansion which can be aided by a mechanical break-up at the valve's final discharge orifice. Although some of it goes into the solution, it quickly frees itself in the atmosphere on discharge. The disadvantages of its lower degree of solubility, when compared with the other liquid propellants, are off-set by its many advantages, particularly for perishable foods, It should open new doors for the expansion of the whole field of pressurized packaging. Even as the industry has been stimulated by the nitrogen development, which has restricted application, due to its physical and chemical characteristics; so, we hope that with this new transparent dry ice, application horizons will be further extended. Only the future can tell its ultimate possibilities.★

Aerosols at Lederle

(*From Page* 58)

a custom filler eliminates the problem of what to do with an idle line (and with idle personnel) after several weeks' supply has been run off in a single week.

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"Rhulispray" is often displayed close to the older, non-aerosol "Rhulicream" in retail stores.

The better he knows the formulation and some of the problems he might encounter in the filling operation, the more he can help us eliminate the cause of such problems and turn out a better product."

What about Lederle's future in the aerosol field? First, it would appear that a "breakthrough" may soon come in aerosol veterinary products. One possible product under active consideration is an aerosol vaccination for fowl, something that currently is being done with a syringe and other time-consuming, costly devices. With such an aerosol an entire flock of fowl could be vaccinated in a matter of minutes.

The packaging development department is also working with nitrogen as a means of dispensing vitamins and a whole range of Lederle drug products now dispensed from conventional tubes, jars, etc.

If the aerosol field is truly limitless, as aerosol experts have been saying for the past few years, Lederle obviously intends to be among the leaders in developing new and exciting products.★

Consultant's Corner

(*From Page* 80)

Alcohol can hydrolyze propellant directly and in addition can act as a carrier of vagrant water if it is not thoroughly dehydrated. In the case of an aluminum container the alcohol will react completely with the aluminum to form aluminum alcoholates or ethoxides. For this reason alcoholic products proposed for aluminum packaging should always be suspect, although some such products have been packaged with moderate success. Apparently water in the alcohol solution to the extent of 1 or 1½% will contribute optimum stability to the product. Less than 1% will allow formation of the alcoholates and over 1½% water content will result in hydrolysis of the propellant.

Formulations made up with inherently corrosive ingredients (such as lauryl sulfate shampoos) will usually result in the development of electrolytic pit or perforative type corrosion. Products of this general class may of themselves corrode the exposed metal and in addition may cause hydrolysis of the propellant (which, incidentally, should be made up of propellants 12 and 114 or pure hydrocarbons, or a combination of all of them). If the hydrolysed propellant releases acid into the already corrosive formula, electrolytic activity is increased and perforation or serious pitting of the container will take place. It is probably accurate to say that no satisfactory solution to this type of corrosion has been found to date.

Since electrolytic corrosion does its damage at the breaks in the film coating, it is occasionally possible to avoid early perforation by using uncoated cans. This has the effect of spreading the area of electrical activity and of reducing the degree of penetration at any one point. However, this approach cannot be counted on until it is proved effective by shelf testing and cannot even be considered if the product would be damaged by metal ions picked up from surface corrosion.

From the foregoing it may seem that nothing at all can be packed. Of course, this is far from the case and there are as many exceptions to the theoretical expectation as there are arguments with them. However, it should be apparent that there are no simple solutions to the corrosion problem and that in the final analysis the only answer *must* come from actual shelf life tests.★

Aerosols in Review

(*From Page* 84)

aerosols. But is a suntan aerosol fundamentally right? There is the long range effect of inhalation that must be considered. Then the problem of bathing suit (especially Lastex types) stain or damage. Finally, it is important to get a uniform film applied to all exposed areas.

"Using an aerosol to get adequate sun protection is therefore not without some problems. If these can be surmounted, then it could be a promising field."★

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Ph. Chaleyer Purchased

Perfumery Associates, Inc., New York, recently announced that it has acquired Ph. Chaleyer, Inc., New York essential oils firm, and that it will combine research and development facilities of both firms.

Aerosols in Great Britain

(Continued from Page 79)

8, 1954 and the claims may be briefly summarized as follows:

Shaving creams comprising

1. a detergent (4-15% of total weight) consisting of water-soluble fatty acid soaps of sodium, potassium and at least one nitrogen-containing base, the fatty acids from which these soaps are derived having 12-20 carbon atoms in the molecule,
2. a low molecular weight halogenated hydrocarbon propellant (5-15% of total weight), and
3. aqueous solvent medium.

The other patent is entitled "Composition and Means for Producing and Supplying Detergent Lather". It was granted to J. G. Spitzer of Carter Products Inc. A brief summary of the claims made by this patent reads as follows:

Compositions for use in producing stable lathers consisting essentially of liquid mixtures of

1. an aqueous detergent solution containing 5-30% by weight of detergent, the latter comprising at least one of the following soaps: Sodium, potassium and water-soluble amines, and
2. a halogenated hydrocarbon pro-

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pellant having not more than two carbon atoms and containing at least one fluorine atom, the vapor pressure of the propellant ranging from 5-300 p.s.i.g. at 70°F. The proportion of propellant to be from 0.2 to 0.0125 moles per 100 g. of the composition.

In view of the dispute going on at the moment in the U.S.A. between Colgate and Carter, it is interesting to note that in Great Britain the Colgate patent (719,647. Application made: 28/2/52. Complete specification published 8/12/54) has definite date priority over the Spitzer patent (748,411. Application made: 10/4/53. Complete specification published: 2/5/56).

Other patents of interest are No. 764,862 and 780,885.

The former, granted to Midland Silicones Ltd., London (a company associated with Dow Corning), has the title "An Article for Dispensing Organosilicon Compounds" and "claims an article for dispensing a finely divided spray of an organosilicon material employing chlorofluorocarbon materials as propellant. The organosilicon material could be a resinous or liquid siloxane polymer, a disilane, a silmethylene, etc."

British patent 780,885, published Aug. 7, 1957 was granted to Innoxa (England) Ltd. and makes very interesting reading. The following is claimed: A cosmetic colored foundation cream consisting of a pigment or pigmented powder in a cosmetically suitable base capable of being ejected from an aerosol dispenser in the form of a highly aerated cream, and comprising

1. an aqueous emulsion incorporating an emulsifying agent,
2. an oil or fat,
3. a preservative,
4. a perfume, and
5. a propellant.

Examples from this patent are:

1.

Pigmented Powder with preservative	15	parts
Lanoline adsorption base	15	"
Coconut fatty acids	6	"
Cetyl alcohol	4	"
Mineral Oil	3	"
Triethanolamine	4	"
Water to	100	"
Perfume	q.s.	"

2.

Pigmented Powder with preservative	15	parts
Lanoline adsorption base	15	"
Stearic acid	1	"
Oleic acid	1	"
Myristic acid	1	"
Lauric acid	3	"
Stearyl alcohol	3	"
Arachis oil	4	"
Triethanolamine	3	"
Potassium hydroxide	1	"
Water to	100	"
Perfume	q.s.	"

For use with any of the above creams a suitable color base can be made as follows:

Titanium Dioxide	50	parts
Kaolin	20	"
Burnt Sienna	4	"
Orange Lake	2	"
Blue Lake	1	"
Yellow Lake	2	"

The invention appears to be based on the fact that it is desirable to reduce the viscosity of the product in order to obtain an even spread of pigmented cream on the skin. This is achieved by a large degree of aeration, brought about by air or an aerosol propellant.★

Congress Hints Controls

(*Continued from Page* 59)

indicated in his TGA speech that he wants a cosmetic law which would require pre-market testing for all new cosmetic products—not just the *ingredients*. This approach would be opposed by the cosmetic industry because it (1) would shift the burden from the chemical supplier to the cosmetic manufacturer; and (2) would delay the introduction of new products.

"Cosmetic manufacturers have had a holiday from FDA regulation for years. Because of small budgets, FDA concentrated on danger-to-health cases. During this period, cosmetic labeling claims played competitive leapfrog. Now, however, FDA has emerged from poverty, and has funds for cosmetic enforcement."★

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New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the publisher of this magazine, Aerosol Publications, Box 31, Caldwell, N. J., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

2,845,203. Filling and Sealing Device. Issued July 29, 1958 to Norman Potash, Baltimore, Md.

A filling and dispensing valve for pressurized containers comprising an upper body portion and a valve portion connected by an intermediate necked portion, said necked portion being axially extensible and of lesser diameter than both said body and valve portions, said necked portion having radial openings there through and said body and necked portions having an axial opening connecting with said radial openings. Also claimed is a similar valve wherein the upper body portion is cylindrical and the lower valve portion is in the form of a frustum of a cone to assist in inserting the valve into a container wall opening, and one in which the valve is made in one piece from an elastomer.

•

2,846,831. Method of Attaching Resilient End Closures to Containers. Issued August 12, 1958 to Walter J. Dobbins, Wheaton, Ill., assignor to American Can Co., New York, a corporation of New Jersey.

A method of attaching a resilient material closure member to a container for liquid products, comprising the steps of providing a container having a U-shaped ring including a countersink wall section permanently secured to one end of said container and a laterally inwardly spaced locking wall section projecting upwardly above said container and having an outwardly projecting protuberance thereon, said locking wall section in cooperation with said countersink wall section setting off therebetween an open annular channel, providing a resilent material closure member having an annular depending flange with an inner face of substantially the same annular dimensions as the outer annular dimensions of said locking wall section and with a recess in said inner face to produce a snap-on closure member, snapping said closure member over said locking wall section of said ring with said protuberance disposed in said flange recess to lock said flange in position on said ring, and applying a pressure against said flange and said locking wall section simultaneously in a direction axially of said ring, whereby said locking wall section is collapsed axially into said container and said flange simultaneously is compressed into said open channel to permanently attach said resilent material closure member to said container.

•

2,849,163. Dispensing Valve Having Dip-Tube Suspension Means. Issued August 26, 1958 to Jack W. Soffer, St. Louis, and Eugene H. Neupert, Ferguson, Mo., assignors to Development Research, Inc., St. Louis, Mo., a corporation of Missouri.

In a valve for a pressure dispenser whose contents are discharged through flow-conducting means within the container, means to secure such flow-conducting means in communication with such valve, comprising a resilent valve seat having a depending tubular portion in the path of flow to such valve, a hollow, substantially rigid walled member in communication with such flow-conducting means and having an upper wall inwardly adjacent said depending tubular portion of such valve seat, and a substantially rigid annulus having a plurality of inwardly-presented spaced retaining projections, said annulus disposed spacedly about and radially outward of said rigid walled member and the depending portion of said valve seat being interposed therebetween.

•

2,849,323. Self-Propelling Food Mixture. Issued August 26, 1958 to Edmond G. Young, Mickleton, N. J., assignor to E. I. duPont de Nemours and Co., Wilmington, Del., a corporation of Delaware.

A self-propelling food mixture confined under pressure in an aerosol dispensing container, said mixture consisting essentially of an aerosol-dispensible edible food formulation containing water as a constituent and a propellant for said food formulation which propellant is a member of the group consisting of perfluorocyclobutane which is mainly in liquefied form and mixtures of said perfluorocyclobutane with at

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least one of chlorotrifluoromethane, tetrafluoromethane and chloropentafluoroethane in a minor proportion sufficient to increase the pressure in the container up to about 40 to about 90 pounds per square inch gage at 70° F.

•

Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

SCHULTZ-INSTANT PLANT SHINE, in bold face capitals, wreathed in a leaf design, for liquid coating preparation to be applied to plant foliage to enhance its luster. Filed Sept. 9, 1957 by Schultz Products Co., Inc., St. Louis, Mo., claiming first use one or about June 30, 1952.

GOLDEN PEARL, for hair coloring. Filed May 15, 1958 by Richard Hudnut, New York, N. Y., with first use reported for July 17, 1956.

TINT 'N SET, in heavy script, for hair treating compound. Filed Jan. 20 by Sylvia Mende, Los Angeles, assignee of Tint 'n Set, Inc., Los Angeles, with first use claimed for May 2, 1954.

STANLEY, in outline capitals, for moth cakes, perfumed crystals, bowl deodorants, moth sprays, insecticides, and disinfectants; moth proofing rinses, liquid insecticides and disinfectants; air or room deodorants; refrigerator deodorizers. Filed May 17, 1956 by Stanley Home Products, Inc., Westfield, Mass., with first use given as Sept. 15, 1931.

PRESTEX, for liquid glass cleaner. Filed Oct. 22, 1956 by William C. Fawkner, d.b.a. Prestex Products Co., St. Paul, Minn., claiming first use Sept. 15 of same year.

ANGEL MIST, for shampoo for the hair. Filed Jan. 24 by Chesebrough-Pond's Inc., New York, claiming first use Jan. 20, 1956.

PLEDGE, for furniture polish and cleaner. Filed Feb. 10, 1958 by S. C. Johnson & Son, Inc., Racine, Wis., with first use Jan. 2 of same year.

WOODY GLEN and MY DESIRE, both for perfumes. Both filed July 17, 1957 by Park & Tilford, New York, claiming first use May 20, 1957.

LOOKING GLASS SHINE for shoe polish. Filed Aug. 30, 1957 by Knomark Manufacturing Co., Inc., Brooklyn, N. Y., claiming first use in Feb. 1946.

ORKIN-AIRE, for insecticides. Filed May 15, 1957 by Orkin Exterminating Co., Atlanta, Ga., with first use reported Feb. 28, of same year.

SILCOLITH, for silicone spray lubricant and mold releasing agent. Filed Dec. 23, 1957 by Theodore Hiertz Metal Co., St. Louis, Mo., with first use claimed Aug. 15 of same year.

SENESPRAY, in bold-face capitals, for desensitizing coating used on lithographic plates. Filed June 26, 1957 by The Senefelder Co., Inc., Woodside, N. Y., with first use June 14 of same year.

SPICYMIST, for room or household spray deodorant. Filed Dec. 12 of last year by Acme Chemical Co., Milwaukee, claiming first use Oct. 16, 1957.

PLANT-SHOOT, for wetting agent for adhesion of growth stimulants and the like to plants. Filed July 26, 1957 by Nott Manufacturing Co., Inc., Mount Vernon, N. Y., claiming first use March 4 of same year.

REDDI-WIP, in script, for whipped cheese-flavored dressing for use on salads, vegetables, hors d'oeuvres, and the like. Filed March 10 by Reddi-Wip Inc., Los Angeles, Calif., claiming first use Oct. 29, 1957.

•

Pharmacists' Society to Meet

The first Fall meeting of the newly-formed Society of Pharmacists in Industry will be held on Thursday evening, Oct. 9, at the Academy of Science, 2 East 63rd Street, New York.

Cocktails will be served from 5:30 P.M., followed by dinner at 6:30. A prominent member of the industry will be guest speaker.

President of the society Walter Fredell, Warner-Lambert Research, has announced that this will be an open meeting, and guests are cordially invited.

•

Owens-Illinois Appoints Two

The Owens-Illinois Glass Co., Toledo, Ohio, has named Elliot R. Owens to the newly created post of vice-president and technical director for its Glass Container Division. He is succeeded by Eliot Marr, who was vice-president and production manager of the eastern glass container division. Earle G. Ingels, manager of the glass container plant in Oakland, has succeeded Mr. Marr.

Bremer Named by Dior Perfumes

Christian Dior Perfumes Corp., New York, has appointed Paul Bremer to the post of general manager. He succeeds Anne Wright, who retired last month as executive vice-president and general manager.

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OVER THE TRANSOM

OUR Columnist for Great Britain, and the co-author of the first full length technical book on aerosols, A. Herzka, will visit the U.S. during the latter part of November. He will also attend the CSMA meeting in New York, and visit a number of aerosol plants in the East and possibly the Midwest. Mr. Herzka, who is well-known as an authority on pressurized packaging throughout Europe, is with the Metal Box Co., Ltd.

* * *

Container prices are headed for another boost about Nov. 1, this time because of higher costs for tinplate, labor, and other items. American Can, first to make the announcement, said that the price rise will be in direct relation to the costs involved in each type of can—a departure from previous industry pricing practices. However, aerosol fillers can take little comfort from this last fact, since aerosol cans require more labor and handling than standard round tinplate cans. Principal reason for the new boost is an increase in tin-plate prices by U. S. Steel and Youngstown Sheet and Tube.

* * *

Talk about palatial offices! Charles Revson, president of Revlon, has a new one in the Tishman Building, which probably outranks them all. Adjoining his rose-wood panelled office is a Roman bath with gold and white mosaic and marble walls. The floors are covered with deep, pure white carpet, on which Mr. Revson reportedly likes to walk barefoot for fun and exercise!

* * *

The Falcon Alarm Co., Summit, N. J., which recently had its Freon-powered boat horn accepted by the U. S. Coast Guard, has quite an extensive range of devices powered by fluorinated hydrocarbons. Included are automatic fire detectors, various other sound producing units, and (for promotional purposes) the "first and only Freon-powered organ in the world." The organ was shown at the boat shows in New York and Chicago last winter and at various safety shows around the country since then.

* * *

A new custom filler, heard about too late to get into our Buyer's Guide listings, is Rocket Chemical Co., 4672 Alvarado Canyon Road, San Diego, Calif. In addition to its own product (WD-40 Rust Preventive), the company is offering custom filling services. Some of the anti-"bomb" people may find the name "rocket" a little too close to the now tabu "aerosol bomb."

* * *

The two European aerosol associations, the Frankfurt aerosol Group and the International Aerosol Association, both issued booklets recently. The Frankfurt Group's is in German, and may not be of interest to the U. S. industry, but the IAA's periodical is an excellent digest of current aerosol articles, developments, and news.

* * *

Though we won't mention names, one aerosol custom filler is faced with a peculiar situation. A technical man he recently fired has returned to his plant as quality control supervisor for the products of the custom filler's chief customer!

* * *

A Coral Gables, Fla. company called Duon Inc., has come out with a stick form hair dressing which it claims "promises to make hair sprays obsolete". We look with jaundiced eye on such claims, since it is our view that the stick-type of hair dressing is actually a step *backward* from the convenience, non-messiness, and high consumer preference currently enjoyed by aerosol hair sprays!

* * *

John Hulten, manager of propellant sales for Union Carbide, has written an excellent article on aerosols in the Sept. 9 issue of the *New York Journal of Commerce*. Though primarily intended to alert packagers to his own company's activities in the aerosol field, it contains some good basic information about aerosol packaging, the future market, together with interesting data on the use of fluorocarbons in refrigeration and air conditioning.